DOCUMENT RESUME

ED 129 590 SE 021 242

AUTHOR	Cohen, Karen C.
TITLE	The Impact of the WPI PLAN on Students. A Report of a Three Year Longitudinal Study at Worcester Polytechnic Institute, Worcester, Massachusetts, 1972-75. Project Report No. 3.
INSTITUTION	Worcester Polytechnic Inst., Mass.
SPONS AGENCY	National Science Foundation, Washington, D.C. Directorate for Science Education.
PUB DATE	Nov 75
GRANT	NSF-GY-9353
NOTE	197p.; For related documents, see SE021240-241; Contains occasional marginal legibility in Appendices A and C
EDRS PRICE	MF-$0.83 HC-$10.03 Plus Postage.
DESCRIPTORS	*Curriculum Development; Educational Assessment; Educational Programs; *Engineering Education; *Evaluation; *Higher Education; *Instruction; Science Education; Student Opinion; *Undergraduate Study
IDENTIFIERS	Research Reports; *Worcester Polytechnic Institute

ABSTRACT

Under a 1972 grant from the National Science Foundation's College Science Improvement Program (CoSIP), Worcester Polytechnic Institute undertook a major educational experiment involving the total reorientation of its educational programs. The encompassing effort is referred to as the WPI PLAN. Several modes of evaluation have been and continue to be employed to assess the nature and impact of the events that have been occurring at WPI. One of these has been a systematic study of the effects of the WPI PLAN on the WPI student body, including comparative studies involving students at other institutions. This document is a comprehensive report of those studies conducted during the years 1972-75. The findings attempt to relate to one key question: Is the WPI PLAN an improvement or a mistake from the student point of view? This report focuses specifically on five broad areas: (1) competence; (2) self-concepts; (3) attitudes and educational goals; (4) background and ability factors; and (5) perceptions of the school environment and use of time. Results indicate the students are spending more time in activities related to their overall learning, although less of this time is through a direct contact/lecture format than at comparison schools and more in self-governed activities. (BT)

****
* Documents acquired by ERIC include many informal unpublished materials not available from other sources. ERIC makes every effort to obtain the best copy available. Nevertheless, items of marginal reproducibility are often encountered and this affects the quality of the microfiche and hardcopy reproductions ERIC makes available via the ERIC Document Reproduction Service (EDRS). EDRS is not responsible for the quality of the original document. Reproductions supplied by EDRS are the best that can be made from the original. *
****

ED129590

U S DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

THE IMPACT OF THE WPI PLAN ON STUDENTS

A Report of a Three Year Longitudinal Study At Worcester Polytechnic Institute Worcester, Massachusetts 1972-75

Project Report No. 3

Report prepared for
NATIONAL SCIENCE FOUNDATION
DIRECTORATE FOR SCIENCE EDUCATION
Restructuring the Undergraduate Learning Environment
Under Grant Number GY-9353

SE 021 242

Any opinions, findings, conclusions or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.

THE IMPACT OF THE WPI PLAN ON STUDENTS

A Report of a Three Year Longitudinal Study At Worcester Polytechnic Institute Worcester, Massachusetts 1972-75

Project Report No. 3

by
Karen C. Cohen, Ph.D.

Report prepared for
NATIONAL SCIENCE FOUNDATION
DIRECTORATE FOR SCIENCE EDUCATION
Restructuring the Undergraduate Learning Environment
Under Grant Number GY-9353

AUG 0 3 1976

FOREWORD

The National Science Foundation's Directorate for Science Education through its program, Restructuring the Undergraduate Learning Environment (RULE), is supporting a limited number of projects at institutions that are undertaking major changes in their undergraduate instructional programs in the sciences. In May 1972, Grant GY-9353, the prototpye award for this program, was made to Worcester Polytechnic Institute, Worcester, Massachusetts. The purpose of this document is to transmit to the public one of the products of that project.

The Foundation's purpose in RULE is to encourage colleges and universities and their science faculties in the development, testing, and evaluation of new or unconventional approaches to the organization, management, delivery, and/or content of undergraduate science education. Awards under RULE for projects which are comprehensive or institutional in scope, are based on the presumption that some of the problems confronting institutions of higher learning require a systematic, rather than fragmented approach. Projects which are directed at altering the basic structures of science programs and which are determined to have the greatest potential for increasing nationally the diversity of institutional settings for science receive priority in consideration for support.

The objectives of the Worcester Polytechnic Institute's restructuring project, for which NSF and other agencies both public and private have provided support, are summarized by the institution in its original proposal as follows:

> Worcester Polytechnic Institute following two and one half years of intensive study and planning, has developed and begun the implementation of a PLAN for a new and comprehensively different educational program, responsive to the needs of individual students, responsive to the needs of society, and encouraging sensitivity to the ideas and values of civilization. The PLAN involves a complete change in every aspect of campus activities, affecting every member of the faculty, every student, and every administrator.
>
> Since this major educational enterprise, involving total reorientation of an entire college, will require significant investment over the next several years, WPI now requests the assistance of the National Science Foundation and the National Endowment for Humanities, in developing itself as a model college, featuring: 1. Degree requirements measuring the achievement of competence rather than accumulation of academic credits. 2. Individual freedom in the planning of the educational process rather than a rigid prescribed curriculum. 3. A large component of self-initiated investigation rather than passive classroom participation. 4. New instructional methods emphasizing education as a cooperative venture between students and faculty, rather than the more frequent relationship of mutual antagonism.

> The PLAN emphasizes programs with concentration in science or engineering, containing a prescription for the integration of the humanities into the total educational experience, and programs with concentration in humanities or social science requiring demonstration of significant competence in science and engineering.
>
> WPI is now committed to an innovative model program which will not only demonstrate the educational effectiveness and financial feasibility of a new approach to scientific, technological and humanistic education, but will also add to the national experience in methodology of affecting major reform in established institutions of higher learning.

The Foundation's purpose in awarding this grant was to assist WPI in implementing its plan for total restructuring of its undergraduate program in the sciences, to help insure that the resultant project could be observed and studied as a model, and to provide to all interested parties some insight into the process of institutional change.

Several modes of evaluation have been and continue to be employed to assess the nature and impact of the events that have been occurring at WPI. One of these has been a systematic study of the effects of the WPI PLAN on the WPI student body, including comparative studies involving students at other institutions. This document is a comprehensive report of those studies conducted during the years 1972-75. It is my belief that this report may serve as a significant resource to persons concerned with the Nation's higher education, in particular undergraduate science education.

Robert F. Watson
Coordinator
Educational Program Restructuring
National Science Foundation

PREFACE

I should like to thank the literally thousands of people who have participated in and helped this study: the students, for their continuing receptivity to waves of questionnaires and interviews over the past three years; the faculty of WPI and the control schools for their insights, hints, and aid with interpreting the large "bloomin', buzzin' confusion" which the activities of three colleges encompasses; the schools' administrations for help and cooperation through the program, and especially to Deans Grogan, Reutlinger, and van Alstyne, President Hazzard, and Mr. Joseph Mielinski of WPI for their time and support; the National Science Foundation both for financial support enabling this effort and for timely suggestions as to direction and expansion; the NSF Advisory Panel, who conducted their own biannual evaluation, the results of which so often dovetailed with the documented findings of this report and whose interest in and input to the ongoing evaluation was quite valuable; and finally, to the following individuals for assistance with implementing this evaluation program and without whom it could not have been done--Harriet Kay, Helen Koskinas, Mary Randall, Susan Henoch, and the many individuals at the Worcester Area College Computation Center at WPI for their help. For these people and their competence I am grateful and thankful.

Karen C. Cohen
Worcester, Massachusetts
November 1975

TABLE OF CONTENTS

GLOSSARY OF ACRONYMS viii

I. INTRODUCTION AND BACKGROUND TO THE STUDY 1

II. FOCUS OF THE STUDY 5

III. INSTRUMENTATION AND METHODOLOGY 8

- A. Sources of Data 8
- B. Analysis of the Data 12
- C. Use of Comparison Schools 12
- D. Organization of the Report 14

IV. FINDINGS--GENERAL GOALS AND RESULTS 15

- A. Student Competency 15
  - Summary 24
- B. Students' Self Concepts 24
  - Summary 29
- C. Attitudes and Educational Goals 30
  - Summary 35
- D. Student Background and Ability Factors 36
  - Summary 39
- E. Perception of the Learning Environment--Use of Time 40
  - Summary 42

V. CONCLUSIONS 43

GLOSSARY OF ACRONYMS

ACE	American Council on Education
CCT	Clarkson College of Technology
CEEB	College Entrance Examination Board
CoSIP-RULE	College Science Improvement Program and Restructuring the Undergraduate Learning Environment
EIT	Engineer-In-Training Examination
NAIS	National Association of Independent School
NSF	National Science Foundation
SAT	Scholastic Aptitude Test
SIT	Stevens Institute of Technology
WPI	Worcester Polytechnic Institute

I. INTRODUCTION AND BACKGROUND TO THE STUDY

Three years ago I was asked to "evaluate the effects of the WPI Plan on its student body" by the administration and faculty of Worcester Polytechnic Institute (WPI). At that point WPI was literally in the middle of performing drastic, dramatic surgery on its entire educational program in the hopes of graduating future engineers who would not only continue to be well grounded in the fundamentals of their discipline but who would also be far more than what the traditional image of the term "engineer" connotes. The goal was to produce "technical humanists," engineers aware and able to take into account the societal as well as technological impact of the problems they would be dealing with, engineers motivated and capable of self-sustaining education and of adapting to new and future demands for skills which may not have been envisioned by anyone at the time of their undergraduate education. Such a brief description does great disservice to the scope and ambition of the transformation WPI attempted in its programs and to a large extent has accomplished over the past five years. Appendix B of this report, "Restructuring Undergraduate Education at Worcester Polytechnic Institute" by Dean William R. Grogan, explains clearly and in good detail the background and prominent features of this new program, the WPI Plan.

In attempting to evaluate the effects both of the educational strategies as well as of the results of such a large program on the student body involved, certain priorities had to be set and certain realities taken into account. During the first year of evaluation, the greatest need for the school was clearly for formative, periodic evaluation feedback to those involved in developing, administering and taking the program. At the point when this evaluation began (September 1972), the faculty, administration and students had received virtually no objective information to enable them to make data-based decisions concerning the retention, change, or deletion of any components of the program itself--and the program had already been in partial operation for two years. An intensive interviewing and questionnaire campaign was begun--focussed on the implementation strategies, i.e., the specifics or mechanics of the program and students' reactions to them, in an attempt to uncover those areas where there were in fact real and major problems and quell anxiety involving those areas where things were going fairly smoothly. The results of this first year of formative evaluation of the program, the primary goal of which was aimed at program improvement, are available in the report, "Evaluation of WPI Plan--Student Reactions, Report No. 1, September 1972 - June 1973," by Karen C. Cohen, Ph.D.[1]

During the second year of this three-year study, the evaluation expanded its scope in two ways: (1) one comparison school, Clarkson College of Technology (CCT), was introduced and evaluated with many of the same approaches used for WPI and (2) the content of the student evaluation was broadened from an emphasis on program mechanics and attitudes to them, to include goal related aspects such as more general attitudes and skills. Major findings from this interim year of the study are available in "WPI Plan Student Evaluation Findings (1973-1974): Summary of Highlights" by Karen C. Cohen, Ph.D.[1]

During the current (1974-1975) academic year the evaluation of student reactions to the WPI Plan has broadened again, involving two comparison schools--

---

[1] Both reports are available from Professor Karen C. Cohen, WPI, Worcester, Massachusetts, 01609.

CCT and Stevens Institute of Technology (SIT)--additional questionnaires and standardized testing information, and more interviewing. The study's methods are described in Section III of this report and the findings concerning the goals of the program are reported in Section IV. Findings about the implementation or mechanics of the program are reported separately.

Although more detailed descriptions of the three schools involved in this study are available, most briefly they are generally viewed as similar in the following respects: they all are strong engineering schools, small, privately endowed, with apparently similar undergraduate student bodies. Although they differed markedly in many aspects, they were deemed useful for comparative purposes during the period of this evaluation for reasons which will be elucidated later in this report.

In attempting to present or report the results of three years' study, hundreds of interviews, thousands of questionnaires and uncounted observations, a conscious decision was made to condense report results in areas of maximum interest to WPI and the scientific and educational communities, emphasizing those findings which were striking either by their presence or absence. This decision was made in the hope that the report will be brief enough to be useful and readable. Obviously in the past three years information was collected and is available which may be omitted or mentioned only in passing for purposes of this summary report. It was felt that the following areas would be of greatest interest both to WPI and other readers as well:

Program Goals (Part I, presented here):

A. Student competency
B. Student self-concepts
C. Attitudes and educational goals
D. Background and ability factors
E. Perception of the school environment and use of time.

In terms of implementation features (presented in Part II):

A. Project experience
B. Competency examination
C. Seven-week term
D. Sufficiency requirement
E. Grading system
F. Negotiated admissions
G. Relationships with faculty/advisors
H. Use of time
I. Miscellaneous findings and observations (IPI, type of project, etc.).

Several specific further articles, follow-up studies, and reports are anticipated as a result of the data collected during this evaluation, e.g., in the areas of the effects of comparative modes of instruction (IPI and traditional lecture), the congruence of faculty and student attitudes in institutions undergoing rapid and slower change, and experiential learning--to mention but a few.

A follow-up study will be done of Plan and non-Plan graduates over the next three years to see how they fare following graduation, and the formative evaluation of WPI's program will continue. The follow-up, like the original investigation, is funded by the National Science Foundation under its CoSIP-RULE program. Those individuals interested in further information involving the evaluation summarized here or any of the aspects it encompasses are invited to contact the author through WPI, Worcester, Massachusetts 01609.

II. FOCUS OF THE STUDY

In looking at the effects of the WPI Plan on its student body, two general categories of questions seemed paramount: (1) to what extent are the Plan's goals being met, and (2) how well does the collection of educational strategies assembled to deliver and produce these educational goals work? More specifically, there were several sub-sets of questions involved in each of these areas.

In terms of meeting general Plan goals, we were interested in seeing both if WPI students as a group changed over time and/or in comparison with students at other, more traditional engineering schools, and if this change involved things such as acquiring more positive self-images, positive attitudes towards their programs and futures, confidence in their ability, increased ability to relate science and technology meaningfully, motivation to work and study on one's own, ability to work well together in groups, valuing things other than those technological, and if the educational climate or environment changed in any way.

One very important question to explore in this regard was the change or effect on WPI students which the Plan may have produced through attracting a different type of entering student--a student more in tune with the program's goals. It was of interest to attempt to sort out the change one might attribute to different recruits and that which the Plan alone may have produced. To do so was possible to some extent since the Plan was implemented in stages, initially with 15 students, and with the class of '75 being approximately 50% Plan and 50% non-Plan.[1] It is the case study of the '75 class which yields the most interesting information about Plan effects under conditions where some degree of "control" in such a field setting is at least statistically possible.

---

[1] During the year of this report when "final" data was gathered, the school was approximately 86% Plan and 14% non-Plan. When WPI is mentioned, therefore, it should be considered all Plan unless specifically noted otherwise.

Work with students in the two comparison schools (described below) was done on precisely the same dimensions outlined above. It should be noted, indeed highlighted here, that the evaluation focus was on the effects of the WPI Plan on WPI. The use of comparison schools was done only to shed light on the findings which were emerging from a study of goals appropriate for the WPI Plan. Comparison schools were not evaluated in terms of their own goals and objectives specifically, and conclusions concerning the schools willing to serve as comparison sites should not be made on the basis of information presented here. The comparison schools were looked at through a lens focused on WPI. It is entirely possible and even probable that unique aspects of the comparison schools have gone unnoted in this particular study. Their willingness to cooperate and helpfulness in so doing was very much appreciated since their involvement made possible a documentation and clarification of those effects which may have been due simply to the passage of time and those which could more likely be attributed to the Plan's implementation.

Appendix C includes a complete set of questionnaires used for these schools along with frequency results for each item. Appendix D involves interview data--all interviews were taped, transcribed, and coded, and the summary coded responses are in the Appendix. The volumes of original transcriptions are available only to qualified and legitimately interested researchers, as are the original open-ended comments on the questionnaires.

Information about the specifics of the WPI Plan could not be collected in many instances from the comparison schools since their programs involved different options--e.g., different grading systems, different graduation requirements, less or no project work, fourteen- as opposed to seven-week semesters, and competitive entrance as opposed to negotiated admissions, to mention but a few. An attempt was made to ask as many generic questions as possible about these areas, particularly through interviews, but the most useful information about the particular educational strategies the Plan involves came from the Plan participants, the WPI students themselves.

III. INSTRUMENTATION AND METHODOLOGY

A. Sources of Data

Several approaches were used to obtain information for this study: interviews, questionnaires, standardized tests of environment and self-concept, ACE scores, SAT scores, EIT scores, and reports from project sponsors external to the school. Observations were used as an explicit and open part of the evaluation. Several student-sponsored and run studies were used as a relatively "unobtrusive," i.e., not a part of the official questioning process, method for verifying results obtained from the study. In addition, a successful attempt was made to introduce classroom environment checklists into the four largest freshman courses and student assessment of project experience forms as a routine part of the school procedure so that once again findings could verify or balance those reported to an outside investigator. In this section I shall describe when and how each of these above mentioned approaches were used both at WPI and at the comparison schools.

1. INTERVIEWS

Interviewing of students was done at three separate times during each of the past three academic years--in September, November, and April-May. The purpose of these interviews was to tap the range of student reaction to various aspects of the Plan and WPI and to help construct the questionnaires which were administered to larger segments of the student bodies. Included were questions about understanding of the Plan and its goals, students' personal goals, the reactions to various specifics or mechanics of the Plan, their feelings about courses, etc. At the control schools the same or similar interviews were conducted. Appendix D contains coded results.

During September, randomly selected first year students were asked to interviews during their first week at WPI in an attempt to elicit their initial expectations and reactions to WPI. All of these interviews were conducted with a fairly fixed set of questions or topics and were arranged so that groups of three students were interviewed at the same time whenever possible. Each interview lasted about one hour; the interviews were recorded and transcribed to provide an accurate record of all comments. The interviewers were all trained in the process and were not affiliated with WPI in any way.

The second sets of interviews involved a random selection of students from all classes; these were held in November of each year under the same conditions described above. Students of the same year were grouped together by threes whenever possible.

The third set of interviews, in late April-May of each year, involved small groups of one to three students, again randomly selected from the entire student body at each school under the conditions just described.

At all interviews students were assured of the confidentiality of their responses and were told that they might be asked to come in again for another interview at a later date. Most expressed a willingness to participate again. All students were selected at random and were recruited through the Dean of Students' Office at each school. The percentage of participation, particularly in September and November, was generally high--80 to 94%. During the April-May interviews, participation fell to an average of 78% of those asked to come.

2. QUESTIONNAIRES

During the final year of this investigation three different questionnaires were developed (which expanded on those of the two previous years). Each student at each school received one of the questionnaires. These questionnaires appear in Appendix C, along with the frequency results. Form A focuses on background information and attitudes toward the school and learning. Form B focuses on a version of Osgood's semantic differential involving self concept as well as additional attitudinal information. Form C focuses on the school environment and is an adaptation of the Wahlberg-Anderson Classroom Environment Inventory.

In addition to these questionnaires, the Project Assessment Questionnaire was also developed--one form for students and another form for sponsors--for use at WPI. These project questionnaires were sent to all Plan students who were in off-campus industrial projects and their sponsors (N = 167). The forms and tallies of responses appear in Appendix E.

3. STANDARDIZED INSTRUMENTS

Several kinds of standardized instruments were used in this study. In addition to the School Environment Checklist mentioned above, use was made of SAT scores, EIT Examination results, ACE responses, Osgood's Semantic Differential to measure self-concept, and an adapted version of the Wahlberg-Anderson Classroom Environment Inventory, and selected items from a NAIS Attitudinal Test.

4. OBSERVATIONS

Observations were made on a regular basis, only at WPI, throughout the three years of the evaluation. Once monthly different learning environments which the school provided were observed by the principal investigator, e.g., classrooms, the library, IPI viewing stations, the Project Center, and the laboratories. In a quasi-anthropological role monthly observations were also made involving other student activities in such places as the cafeteria, the "Pub," athletics, fraternities, clubs, and religious meetings. Students were interviewed informally when possible and in this fashion, as well as through formal efforts at collecting information, I became known to a large segment of the student body who were generally quite helpful to me. In turn, I was invited by students to many functions and was also asked for help with interactive qualifying projects on more than 20 different occasions.

This evaluation is primarily formative--the students were informed of findings just as the faculty were, and the evaluator was accepted as a visible part of the WPI scene. Even when others were interviewing students for me, the tapes and transcripts often indicated that students felt they were nonetheless talking to me, e.g., "You tell Karen . . ." or some such phrase. The evaluation, thus, was not seen as totally outside, unconnected to them, or meaningless to many WPI students.

The following table indicates the timing, location, and nature of the general data collection efforts:

Table 1. Data Collection Design

	1972-73			1973-74			1974-75		
	WPI	CCT	SIT	WPI	CCT	SIT	WPI	CCT	SIT
Interviews	X	......not in study......	......not in study......	X	X	......not in study......	X	X	X
Questionnaires	X			X	X		X	X	X
Standardized data	X			X	X		X	X	X
Project questionnaires	-			X	-		X	-	-
Observations	X			X	-		X	-	-
Classroom environment questionnaire (math) IPI vs. traditional	-			X	X		-	-	-

B. Analysis of the Data

All interviews were taped, transcribed, and coded. Two different coders did the bulk of the coding work and spot-checks of their coding was done. On the basis of ten different checks, the inter-coder reliability was in no instance less than .78 and averaged .86.

The questionnaire data was of two sorts--open-ended responses and machine codable items. All machine scorable items were keypunched and processing done by the WACCC and Harvard computer centers. The open ended items were coded in the same fashion as the interviews, i.e., by categories emerging from the responses. The coding was done by the same individuals who coded the interviews. Frequency counts, percentages, non-parametric statistics such as the Chi-square and adjusted C as well as parametric statistics such a t-tests and ANOVA were the primary statistical operations which were used when appropriate. Given budgetary and time limitations it was not possible to delve into more of the highly complex interrelationships which the data may hold. Hopefully this can be accomplished to a greater extent as the sub-reports are compiled and the investigation continues.

C. Use of Comparison Schools

In the first year of this evaluation, data was collected at WPI alone. The school's need for immediate feedback about the implementation of the program has already been explained, and generalizing the findings was not a primary goal. When the first year's evaluation indicated that comparative information concerning changes at WPI and in WPI students against those in less dramatically changing schools could be of value, negotiations were entered into with two schools identified by the National Science Foundation, members of the WPI administration and faculty, and members of the NSF Advisory Panel for this program. These schools were similar to WPI in terms of size; they were both privately endowed; they were primarily engineering schools; and, as we shall see later in detail, their student bodies were remarkably similar in background characteristics and standardized test score measures--in fact, one of the two schools appeared a twin to WPI along these dimensions.

The two comparison schools were Clarkson College of Technology in Potsdam, New York and Stevens Institute of Technology in Hoboken, New Jersey. Since not only a student evaluation but also a faculty and administrative evaluation were underway, both schools were useful. Clarkson was particularly useful as a comparison school for the student evaluation--and the results and comparisons reported here are based mainly on findings from WPI and Clarkson. The student body at Stevens differed in some fairly substantial ways, e.g., half of the enrollment involved graduate students while there were far fewer at Clarkson and WPI, but at Stevens the faculty evaluators[1] felt there was a situation of a faculty in change while the faculty at Clarkson was in a more stable state--thus comparisons of WPI at the faculty level with each school would be productive.

The schools approached were both willing to become a part of the study; Clarkson participated during the second and third years while Stevens participated only in the third year.

Participation, as indicated previously in Table 1, at the student level consisted of interviewing, questionnaires and some provision of standardized test information. In addition, members of the faculty and administration of each school spent a good deal of time with the evaluators providing literature about each school and information about its operations, its hopes, its concerns, and its most severe problems.

---

[1] Drs. Frank Baker and John Gabarro, whose report will be available separately in January, 1976.

D. Organization of the Report

The findings on general goals and results of the WPI Plan in the five areas delineated above will be described in Part I of the report, before reactions to the components of the implementation of the program (Part II). This decision was made for three reasons: (1) the results concerning attainment of goals are probably of greater interest, (2) the implementation components are not especially unique to WPI--i.e., pass/no record grading, seven-week terms, projects, competency examinations, etc.--rather it is the combination that is unique to WPI, the configuration that involves the school alone, and (3) it really is not possible to determine causal connections between isolated Plan components and resultant student growth or change. The implementation information, therefore, is presented as additional and in some ways incidental information for the use of the schools besides WPI who may be considering adopting one or more of the features of the program.

IV. FINDINGS--GENERAL GOALS AND RESULTS

This chapter will focus on the general goals and results of the WPI Plan in terms of competency, student self concepts, attitudes and educational goals, student background and ability factors, and perception of the school environment. Whenever possible, longitudinal comparisons will be made of changes or developments within WPI over the three-year period of this study. In addition, comparisons will be made with the state of WPI and each variable for Plan and non-Plan students. When possible, comparisons will be made with the two control schools to help put the WPI findings into a broader context. Finally, the results for each major variable will be summarized in boxed sections.

A. Student Competency

Obviously one of the most important questions involved in assessing the effects of the WPI Plan is: "To what extent is the competency of the Plan graduates increased, diminished, or unchanged?" Assessing competency, particularly in terms of any sort of future performance in a job, in graduate school, or in other placements was not possible during the brief span of this study. (A follow-up study which will include this dimension is currently beginning.) There were, nonetheless, several indices of competency available within this investigation: (1) SAT verbal and math aptitude scores of students, (2) rank in high school class, (3) EIT (Engineer in Training) examination scores, (4) simulations of future performance in projects involving industrial placement, (5) student self-assessment of competency, and (6) student achievement within the school, or grades. We shall deal with each of these approximations individually.

1. STUDENT APTITUDE SCORES

Table 2. WPI Student Aptitude Scores

	Verbal	Math
Class of '79	520	620
'78	530	640
'77	530	630
'76	540	630
'75	550	640
'74	550	650
'73	560	660
'72	580	680
'71	570	670
'70	565	664

It is evident that the decade's decline in general aptitude scores in the various classes listed in the table parallels the decline which has been a national trend and widely reported both in the media and professional literature. In comparison with the control schools, for which we have only current data, we find that there were no significant differences in these test scores, although in absolute value the WPI scores were slightly lower for all students enrolled during the 1974-75 academic year.

Table 3. Average SAT Scores, All Students in Each School, 1974-75
(taken from Questionnaire B)

	Verbal	Math	Number
WPI	550.0	644.3	188
CCT	557.1	654.5	243
SIT	557.7	658.8	253

2. RANK IN HIGH SCHOOL CLASS

Another indication of competency involves rank in high school class. Students at all three schools were asked to indicate where they ranked and here we find the WPI group slightly higher than the groups in the two control schools.

Table 4. Rank in High School Class of All Students in Each School, 1974-75 (taken from Questionnaire B)

	Top 10% (1)	Top 25% (2)	Top 50%	Top 75% (3)	Other (4)	Average Rank
WPI	60%	26%	9%	3%	2%	1.6
CCT	54%	26%	12%	3%	4%	1.7
SIT	54%	29%	10%	4%	3%	1.7

These values would indicate the high school class average rank was in the top 25% at all three schools, although over half of each school ranked in the top 10%. The differences were not statistically significant.

3. ENGINEER-IN-TRAINING EXAMINATION SCORE RESULTS

One established key indicator of competency or potential competency as an engineer is the ability to pass the Engineer in Training examination on the part of those who are interested in pursuing careers for which such as examination is either mandated or desirable. For this reason, we thought it was especially important to examine, when possible, how well Plan and non-Plan students fared on this examination. Unfortunately, the exact scores of individual takers of the exam are kept totally confidential by the State Board. We are grateful to George Mallis, a member of the Massachusetts Board of Registration, for taking the trouble to provide us with group results concerning the individuals who had taken the examination. Data were only available for WPI students since each state has its own administrative board.

The key year for making a Plan/non-Plan comparison on the basis of these examination scores involved the class of '75. This class consisted of 50% Plan and 50% non-Plan members. Parenthetically, there were no statistically significant differences in terms of verbal or math SAT score results between the Plan and non-Plan students in this class.

The tables below show the number of students on the Plan and the number of students in the traditional program who took the examination and either passed or failed it. The most striking finding from the data is that there was a statistically significant difference between the scores of the Plan students who took the examination and the non-Plan students who did likewise. The Plan student group averaged 83.34 in their scores (this includes scores both of those who passed and who did not pass, assuming that those who did not pass received the highest possible failing score, i.e., 65--the Board would not make failing scores available to us in any manner), while the non-Plan students figured on a similar basis received average passing scores of 78.37.

In the State, of those who took the examination, 88% passed (average score not given. At WPI, 92.5% of the Plan students who took the examination passed it and their average passing score was 84.8; for the non-Plan students, only 85.7% passed the exam and their average passing score was 80.6.

In brief, no matter how one examines the data, it is readily apparent that, on this particular index of engineering competency, there is no way that one can say that the Plan students did not surpass the non-Plan students to some extent. Although this index is only one indication of actual engineering competency, and many other factors must be taken into account, many professionals in the field regard the EIT test scores as significant and "hard" data which indicates the value of a person as an engineer. This EIT result then, points to the value of the Plan in terms of increasing measured competency--as viewed by the accrediting agency--as one of its results.

A further examination of EIT test scores for WPI students in previous years (see Appendix F for this information) indicates that over the past three years, WPI has been generally improving itself in terms of these particular scores. Since the examinations vary from year to year and the passing levels and

DISTRIBUTION OF EIT EXAMINATION SCORES

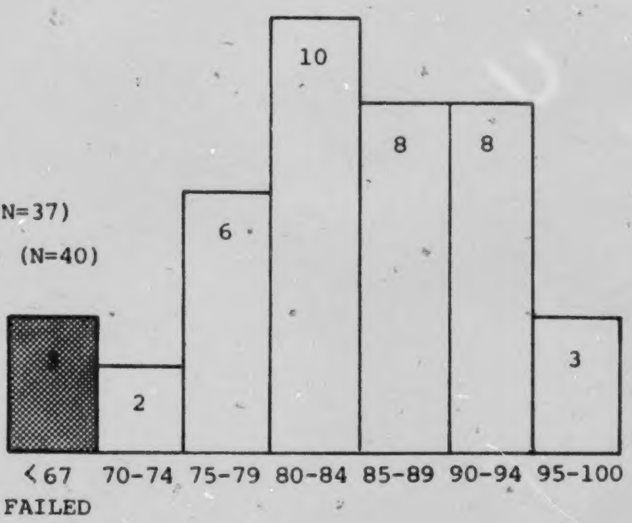
April 1975 Examination

WPI PLAN STUDENTS

Mode = 80-84

Passing $\bar{X} = 84.8$ (N=37)

Total $\bar{X}_{adj} = 83.34$ (N=40)



PLAN/NON-PLAN COMPARISON

$t > 9.0$

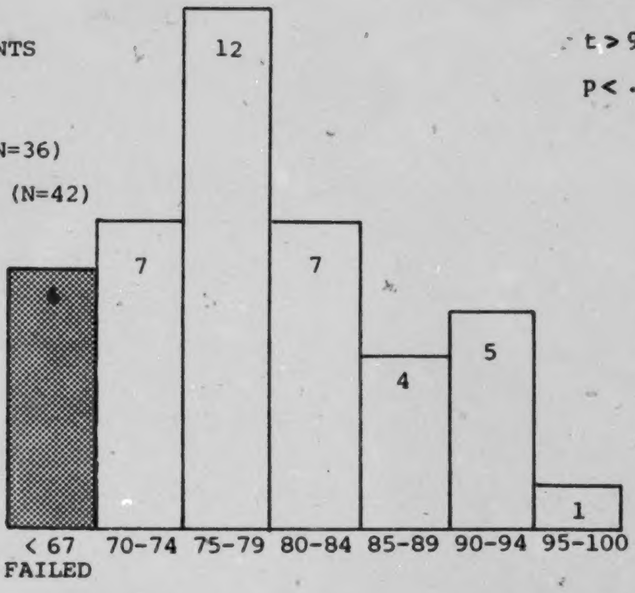
$p < .001$

WPI NON-PLAN STUDENTS

Mode = 75-79

Passing $\bar{X} = 80.6$ (N=36)

Total $\bar{X}_{adj} = 78.37$ (N=42)



state norms similarly vary, and the numbers of students taking the examination at various times when it was offered vary tremendously, probably not too much should be made of this trend. It does, however, indicate in still another fashion a positive impact which the Plan appears to have been making on the engineering competency of its students.

4. SIMULATIONS OF FUTURE PERFORMANCE IN INDUSTRIAL PLACEMENTS--PROJECTS[1]

The WPI Plan, with its heavy project, experiential component has involved hundreds of both Plan and non-Plan students in industrial placements during the past three years. It was felt that an indication of the caliber of students might emerge if these industrial sponsors were questioned. A questionnaire (Appendix E) was developed aimed at determining the hireability of these students and the competencies they displayed or failed to display in their placements for Plan students. The students' responses will be discussed under student self-assessment of competency. As far as potential employers were concerned, their estimations were extremely positive.

Employers were questioned about their students at the end of the 1974 academic year and twice again during the 1975 academic year. Results are based on a combination of these three waves of questionnaires and are from 167 different industrial sponsors. The questions involved the students' preparation, imagination, interaction with the industrial staff, accomplishments on the project as viewed by the sponsor, and how they ranked as potential employees. The table below indicates the results.

Clearly the WPI Plan students were seen as competent in on-the-job situations. The fact that 93% were rated as hireable is a tribute to the students and their "good" (45%) or "outstanding" (39%) preparation. Their additional (unstructured) comments were uniformly positive (see Appendix E for full list) and focused most often on the skills which students possessed to do the job at hand.

---

[1] Non-Plan students did not necessarily or usually participate in projects. The data presented here are for Plan students alone.

Table 5. Project Sponsor Evaluation Questionnaire Results

	Outstanding	Good	Average	Fair	Poor	No Opinion	N
Preparation	39%	45%	13%	2%	1%	--	167
Imagination	33%	49%	11%	3%	--	4%	167
Interaction	35%	43%	13%	4%	1%	4%	162
Aims Achieved	28%	60%	6%	4%	2%	--	163

Hireability:	Under any business conditions	48%
	If business conditions were good	45%
	Only if no other candidates available	6%
	Not under any circumstances	1%

5. STUDENT SELF ASSESSMENT OF COMPETENCY

Students were asked in questionnaires and in interviews about their competence in a variety of ways. In several interviews they were asked what they felt "others" would think of them when they had graduated. At WPI, more than half of those interviewed said they felt others would think they were competent in their fields. The rest had no specific answer to the question. In Questionnaire A, students were asked about their satisfaction with their own level of competence in their major field.

In terms of satisfaction with their own competence, students at WPI generally felt slightly satisfied--as did students at the other schools--averaging 3.4 on a scale where 1 = strong agreement or satisfaction and 7 = strong disagreement or dissatisfaction. There were no significant differences on this particular item (Questionnaire A, item #15) among schools, between Plan and non-Plan students, or between students of different years at WPI.

Students were also asked to describe themselves in terms of forced adjective pair choices, e.g., "good-bad," "purposeful-aimless," etc. Student self-concept as evidenced by the semantic differential choices similarly revealed few and small differences when various types of comparisons and statistical analyses were made. The only adjective pair (out of 12 in the grid) where a statistically significant difference between Plan and non-Plan students at WPI emerged involved the statement, "I am complex/simple." Although all students felt they were complex, Plan students at WPI felt so more strongly than non-Plan students at WPI or than students at the comparison schools (Appendix C, Questionnaire C). The three general scales in Osgood's tool were also developed from the data and here, as with most of the standardized instruments used in this study, statistically significant differences did not emerge, e.g., there were no statistically significant differences between individuals' concepts in terms of the power, evaluation, and aesthetic scales among schools or within classes or groups (Plan and non-Plan) at WPI.

It is generally the case with the instruments that were criterion-referenced, i.e., developed in terms of the specific goals of this program rather than norm-referenced, such as standardized tests, that larger numbers of statistically significant differences emerged. Such findings are hardly surprising, given the nature of the two approaches. They indicate, rather, that gross measures developed for multiple and general purposes may not reveal the subtle changes which a program may cause.

Supporting this observation are the results of students' self-assessment of their competency in specific project situations at WPI. Students at WPI felt, in their project self-evaluations, that their competency was nearly as high as their sponsors had reported (see table 6 below).

Through these self reports, students generally felt they were good or outstanding in areas most closely related to on-the-job engineering competency. They also (see Appendix E) reported a high degree of personal learning from the experience. Further, in their evaluation of projects themselves, WPI Plan students differed from students in comparison schools. These findings will be reported and discussed in the section, "Attitudes and Educational Goals."

Table 6. Student Project Evaluation Questionnaire Results
(selected items)

	Rating (N = 70, percentages reported)			
	Outstanding	Good	Fair	Poor
Preparation	10%	48%	35%	7%
Performance	19%	65%	16%	--
Adaptability	25%	63%	12%	--
Personal learning	52%	37%	10%	1%
Ability to use equipment	23%	65%	12%	--

6. STUDENT PERFORMANCE IN SCHOOL--GRADES

Even though WPI went to a Distinction/Acceptable/No Record system, it is possible to compare the performance of students under the WPI Plan with the school's previous history of grades earned in the following manner. If Distinctions were equated with A's, and if Acceptables are equated with B's and C's, we can examine the figures or percentages for the school, finding that the percentage has not changed; in fact, Plan students seem to be doing better.

Table 7. Grade Distributions

	Dist/A (%)	Pass/BC (%)
1974-75	25/31%[1]	49/43%
1973-74	26/28%	52/52%
1972-73	19/26%	57/61%

It should be noted, however, that there has been no direct attempt to equate these grades and, in fact, direct comparisons per se have been discouraged. For purposes of this study, however, the relative percentage distributions are of interest.

---

[1] In 1974-75 the non-Plan grades were predominately those of seniors who traditionally receive a higher proportion of "A" grades than students in lower classes. This is reflected in the 31% of "A" grades given to that group.

SUMMARY--COMPETENCY

In terms of measurable competency it seems that the WPI Plan is continuing to attract as competent a group of recruits as in previous years and that those in the program perform exceedingly well in job-oriented projects both as rated by project industrial sponsors and by the students themselves. Furthermore, the quality of their academic work under the Plan is equivalent or slightly better overall than before the instituion of this new system, as are their EIT scores, an external index of competency in engineering.

B. Students' Self Concepts

Expecting a new program to change students' self concepts in some global manner during the brief years in which the Plan has been in operation is a major expectation indeed.[1] Since self concept is such a broad notion in and of itself, and measuring it would usually involve an intensive clinical case study type of approach to a selected sample of individuals, we neither expected nor hoped to find many significant results in this area. We did, however, in our attempt to evaluate as broadly as possible the potential effects of the Plan, look at self concept in three different ways. First, we used a version of Osgood's Semantic Differential to measure students' notions of self, ideal self, and others about them, which was administered in the form of a questionnaire to a random selection of a third of each of the three school's student bodies. This data was then analyzed in terms of self concept of all students at WPI, of differences between Plan and non-Plan students at WPI, of differences between Plan and non-Plan students in the class of '75 at WPI (the class that was 50% Plan and 50% non-Plan); WPI students were then compared with students at CCT and SIT in terms of these scores. The second method which was used to measure self concept was more indirect--we found indications of changes in self image in our repeated sets of structured interviews at WPI. The results of the responses to those standardized interviews were compared with the responses to the same standardized questions administered to students at CCT in small group interviews. Comparisons with SIT on the interview dimension were not possible longitudinally since SIT entered as a comparison school only in the final year of the study and, indeed, would be inappropriate for the student groups interviewed often contained graduate students.

---

[1] Dr. Jane Loevinger of Washington University is conducting a longitudinal study of the ego-development of WPI Plan students which is quite thorough with respect to this single variable, i.e., self concept.

The final source of information we had concerning student self concept again emerged from an open-ended question which appeared in Questionnaire A (administered to a third of the student body at each of the three schools involved in the study)--the question was: "What do you feel are the most successful accomplishments of the program at your school." As with the interview format, we again found differences in the area of self concept in the responses of WPI students and students at CCT.

The remainder of this section deals with the few significant findings which emerged and discusses their directions. All of the interview and test synopses and results are available in the Appendix for the reader to examine in depth.

1. OSGOOD'S SEMANTIC DIFFERENTIAL

The Semantic Differential--which was used to measure images of "self," "ideal self," and "others"--was developed and included the three general factors which Osgood originally used, i.e., power, evaluation and aesthetic. The specific results or mean scores on each adjective pair for each school appear in the Appendix as well as the breakdown for WPI by year and by Plan/non-Plan for the class of '75 alone. In all of our testing with this particular instrument, we found no differences at WPI within the school on any of the three major dimensions in the instrument. Indeed, there was a statistically significant difference only on one adjective pair dimension involving any of the WPI internal comparisons and that involved the adjective pair complex/simple. It appears from the data that the first year students may see themselves as slightly more complex than seniors and, similarly, Plan students see themselves as slightly more complex than the non-Plan students. These were the only differences significant at the .05 level or better and, since it involved only one adjective comparison out of the set of 16, it could be due to chance just as well as to any real difference.

In comparison with the other schools, we found large, significant differences when all three schools were involved but far fewer when WPI and CCT were compared. It was inappropriate to use SIT for comparison purposes on this dimension since the data base was in so many ways different from the data bases at WPI and CCT with respect to age, maturity and position. When one removes the graduate students from the SIT pool and attempts to compare WPI, CCT and SIT undergraduates, the SIT number becomes quite small. Therefore, comparing WPI with CCT alone, we find that on only four of the sixteen dimensions were there statistically significant differences. In brief, we find that WPI students feel that they are slightly more stable, more broad, more flexible, and less wise than their counterparts at CCT view themselves. Although the differences between the student populations responding to this set of items were not large, they were statistically significant and indicate that if one were to examine more closely, with better instruments, and the time and money to use a clinical approach, one might indeed find and document in a better fashion these differences in self concept and their possible relationship to an educational program.

Further non-findings in the area of self concept came from the interview results. All of the coded interview findings appear in Appendix D. When one first glances at a few specific questions which were asked, i.e., "Have you changed or do you feel you're going to change this year?" (1973), or "By coming here, will you graduate different than if you had gone to another engineering school?" (1973), or "What have you gained most from your experience here?" (1974 and 1975), and "When you finish here, what do you think other people will think you're able to do?" (1974 and 1975), we find that WPI students generally feel that they will have become more self confident, more independent, more responsible, more self reliant and that people on the outside will think of them as experienced, well educated, competent, able to interact with other people, able to deal with other problems, etc. CCT students similarly feel that they will be esteemed and that they will have gained a solid background, a good education, will be competent and will have confidence in themselves and in dealing with other people when they leave. In terms of the area of self concept, data gathered in the manner done here--through small group interview with different sets of students at each sitting--cannot readily be used as an ideal resource for information. The indications, however, are that students at both schools where this information was gathered in a systematic fashion over a period of time felt that they would be competent and confident when.they graduated and that the school or the program at the school would be helping them in these regards.

When we used a third form of probing for self concept information, i.e., an open-ended essay question administered through a questionnaire, we found some interesting differences between WPI students and CCT students. The question was, "What do you think are the most successful accomplishments of the program here?", and the responses were analyzed in terms of freshman and senior responses to this question at both schools when it was administered during the last semester of the 1974-75 academic year. The overwhelming majority of students at CCT felt that the most successful accomplishments of the program involved "good preparation for a career," and this was the most frequent response both for freshmen and seniors at CCT. The second most frequent response involved the good reputation, good education, high rate of employment for graduates. If one examines the total range of responses at CCT, basically students feel that they are succeeding and the school is succeeding in training them to become good engineers and the students enjoy the fact that the school has that kind of a reputation.

At WPI, on the other hand, students see the most successful accomplishments of the school in dimensions broader than vocational outcomes. By far the most successful accomplishment of the school as viewed by the students at WPI is the incorporation of project work as part of the academic curriculum; students felt that projects give them a chance to see what life is like in the real world, to become more aware of society and to deal with people of other disciplines. A large number of students also felt that the development of self reliance, competence, responsibility, and character development were also major accomplishments of the program at WPI.

Without drawing any statistical conclusions from this kind of information, it is interesting to note that the entire "set" of the WPI students seems to be that of a much greater consciousness of what their program is doing for them or involves in a variety of dimensions, e.g., learning decision making, developing self reliance, understanding the value of project work, etc. At CCT students are viewing the accomplishments of the school and of themselves somewhat more globally and as related specifically to career preparation and post graduate placement. It seems that students at WPI are more acutely conscious of what participating in the Plan program is doing for them and what it means to them on a variety of personal dimensions. The students at CCT do not appear to be going through such self examination. These findings, of course, are to be expected in view of the fact that the hopes, goals, and objectives of the Plan--as well as its promotion and publicity--emphasize what the Plan will do for students along dimensions beyond that of a strict preparation for an engineering career.

SUMMARY--SELF CONCEPTS

> At this point in time it is probably fair to say that in terms of self concept, the WPI Plan is making students more conscious and more aware of their capabilities, their responsibilities and their possibilities for growth in directions beyond that of a traditional engineering career. Although students in the control school individually and selectively mentioned these aspects of their educational program and the relationship of these components to their own development, those who did were far fewer and their responses were not predominant in this area. In a sentence, it would appear that the Plan, or the Plan's rhetoric, is penetrating through student consciousness to some extent and that students feel somewhat differently about themselves as documented partially by Semantic Differential results and other means of obtaining data, i.e. interviews and open-ended essay question responses than students in comparison programs.

C. Attitudes and Educational Goals

The term "attitudes" is annoyingly vague. In terms of the WPI Plan evaluation, we were interested primarily in attitudes towards the school in general, the learning environment, and the particular program it provides. To assess student attitudes towards the school and towards learning we included several Likert-type scale items (see Questionnaire A) constructed for the study, several items from an NAIS questionnaire involving educational goals (see Questionnaire B), and several adjective-opposite comparisons involving opinions of (1) the educational program, (2) the faculty at the school, and (3) other students at the school (see Questionnaire A). In addition, several interview questions involved student attitudes. The findings which are summarized here involve those attitudinal items on which WPI students differed significantly from students at CCT and undergraduate students at SIT in terms of: (1) attitudes towards the school prior to coming, (2) specific attitudes towards the school, and (3) educational goals.

1. ATTITUDES TOWARDS THE SCHOOL PRIOR TO COMING

Some very general indicators of attitudes toward school are reflected in student reasons for applying or attending and how high the school ranked in their opinion when they were applying. There were no statistically significant differences in how each school was ranked (as reported by respondents to Questionnaire A) for its general student body. Nearly 80% of the students at all three schools indicated that their respective school had been their first choice (see Appendix C for percentage figures). There were, however, significant differences in their reasons for choosing the school. Forty-two percent of the WPI students mentioned the Plan as a specific reason (with only 10% mentioning the general school program in the comparison schools). This finding, coupled with 24% at WPI coming for "course offerings," (compared to 44% and 42% at CCT and SIT, respectively), indicates that the school's program and offerings played a greater role in determining school choice for WPI than they did at the other two comparison colleges, although in all three schools the program and offerings were more significant or outstanding than other factors such as distance from home, parental advice, financial aid, etc. The other significant factor at WPI and CCT (though not at SIT) was a visit to the campus (40.2% and 48%, respectively).

2. SPECIFIC ATTITUDES TOWARDS THE SCHOOL

The Likert scale items, statements with which students could agree or disagree, revealed some interesting differences among the three schools. Only those statements where there was a statistically significant difference will be discussed here. (The Appendix contains the full set and mean responses to each item by each school as well as F scores and probability levels.) Furthermore, interpretations rather than statistical results will be made here in the interest of space and readability. Most briefly, WPI students in comparison to those at CCT and SIT:

1. feel slightly better about the directions in which the school is developing,
2. would not prefer that the school become more innovative (while CCT and SIT students would),
3. feel the faculty is less well suited to providing the education that the school advertises,
4. feel the students are less the kind who can benefit most from the academic program being offered,
5. feel the advising system is not a waste of time, or far less a waste of time than students at the other schools,
6. feel themselves overloaded with work, doing more than ever before, more than the CCT and SIT students, although the overload is slight for all,

7. are somewhat less sure what this place (school) is all about, and

8. are spending slightly less time working outside the school in the community than comparison school students, although none of the students felt they were spending very much time working outside the school. (This "work" does not include project activity.)

The pattern of these variations is interesting and predictable. WPI, in introducing the Plan, introduced a less stable state than CCT or SIT at the same point in time. Hence findings 3, 4 and 7, i.e., that the faculty and students are both somewhat less suited to the program and a greater lack of certainty about what the school is all about. WPI students are also working harder, see less need for innovation at the school, and are spending more of their time working at the school (see also "Use of Time," Section E). Such attitudes reflect the reality of the transition and demands of the new program.

When asked about their program in a different fashion (adjective pairs or opposites), there were still more significant differences. Again the synopsis will be of those findings that are statistically significant. (Statistics and levels of significance for all items appear in Appendix C.)

1. WPI students, although finding their program purposeful, found it less purposeful than comparison school students,

2. WPI students, although finding their program strong, felt it less strong than do students at the comparison schools,

3. WPI students found their program more active than comparison school students,

4. WPI students found their program less stable or more changing than students at the comparison schools,

5. WPI students found their program more hopeful than students at the comparison schools,

6. WPI students found their program broader than comparison school students,

7. WPI students found their program faster than comparison school students,

8. WPI students found their program less cautious than CCT and SIT students,

9. WPI students found their program far more flexible than CCT and SIT students, and

10. WPI students found their program more complex than comparison school students.

WPI student views of the faculty at the school (given the same grid of adjective choices) were not as clear cut.

Attitudes toward the student body (again on the same grid of adjectives) indicate that WPI students think other students at the school are less good, more changing, more broad, more fast, less cautious, just as wise, as students at CCT and SIT perceived their respective student bodies.

Perhaps not too much should be made of these student perceptions other than that they indicate to some extent a school in a state of flux and that the general direction of that change is active, hopeful, broader, faster, less cautious, more flexible, and more complex. The faculty and students are not precisely in tune with the envisioned and perceived program.

A further indication of student attitudes toward their school and its program can be gleaned from their essay responses to the question, "Pretend someone similar to yourself, but younger, asked your advice about coming to this school, what would you say? Why?" (Questionnaire B). This data has been analyzed thus far only for WPI students. A random sample of 50 responses of students was categorized and coded. Apart from six students who would recommend not coming becuase of the lack of girls and lack of a social life, the remainder were positive and/or gave the following kinds of advice:

6 Yes: very good school for learning: enjoyable courses, faculty, opportunities in abundance
4 suggest that they have a pretty good idea of what they want to go into; have a major in mind; person should be interested in learning, not just in getting a degree--need high motivation
2 don't be put off by "Braggarts"/"robot"/strange people here
2 must be prepared to emotional depression, high expenses; able to survive with little or no social life, work hard

1	don't be put off by seemingly impersonal faculty
1	"don't be put off by freshman classes--they are only the basics, the important material will come later
1	encourage person if a serious student
1	suggest they live at school to take advantage of all it has to offer
1	good place to learn about people/work
1	must want to come here
1	need better than average intelligence, be enthusiastic about projects
1	Plan has no problems but provides better than average education
1	would explain good/bad parts about WPI/Plan, etc.
1	consider small school environment

It is interesting that the negative feelings about the school seem to involve primarily the lack of a social life rather than the newly introduced program. The emphasis on the amount of work and importance of self-direction in the range of their responses indicates that the motivational hopes of the Plan developers are perceived as realities by students in its implementation.

Attitudes towards the school as elicited through small group and individual interviews were much more detailed than those reported above and generally involved attitudes towards specific components of the Plan or the school, e.g., seven-week terms, grading systems, negotiated admissions, etc. It is more appropriate to report on and examine these findings in the second part of this report, Implementation, than in this section. For the interested reader, however, a complete set of categorized interview responses appears in the Appendix for each school and for each wave of interviewing.

3. EDUCATIONAL GOALS

Along with differences in attitudes toward the school as evidence in reasons for coming, and attitudes while there, there were some differences in educational goals found between WPI students and those at the comparison schools. Two major sets of questionnaire items relate to these goals: (1) post graduate goals--plans after finishing school and (2) a set of sixteen items relating to education and life-long goals (both in Questionnaire B). There were statistically significant differences among the schools on both types of items.

a. Post Graduate Goals

Eliminating SIT (since a large percentage of respondents were in M.S. programs), we find that 32.2% of WPI students anticipate going on to graduate school while only 27.8% of CCT students do. About half of each school expects to go directly to work. The remainder are undecided (13.3% for WPI and 16.0% for CCT) or are aiming for the military.

b. Educational and Life-long Goals

Once again eliminating SIT data from consideration, we find that in comparison with CCT, WPI students feel it is:

1. more important to develop the desire and capacity for life-long learning,
2. more important to become an interesting individual person to yourself and others,
3. more important to be of service to others, and
4. more important to change the world for the better.

Although on many educational and life-long goals students at all three schools agree, it is interesting that where there are differences, they once again reflect hopes or goals of the Plan, e.g., capacity for life-long learning and societal wareness and involvement.

SUMMARY--ATTITUDES AND EDUCATIONAL GOALS

> WPI Plan students in selecting WPI seem to be more influenced by the program at the school than students at comparison schools, although the program at all schools was an important consideration for students prior to coming. Nearly 80% of students at all three schools were at their first choice school. Another significant factor at WPI and CCT was

a visit to the school. WPI Plan students differed in degree about their attitudes toward the school. Specific areas are discussed above. The main conclusion to be drawn from a set of attitudinal comparisons about the school probably is that differences reflect the state of flux or transition to be expected along with introducing a new program--e.g., WPI is "broader," "faster," "more changing," "less stable," "more hopeful," etc. Finally, in terms of educational goals, more WPI students plan to further their education and consider life-long learning, being an individual, being of service to others, and improving the world as significantly more important goals than do students at comparison schools.

D. Composition of the School--Student Background and Ability Factors

In order to see if the characteristics of the student body at WPI changed over time, the American Council of Education Test was administered to all entering freshmen at WPI during Orientation Week of the past three years. This test was also administered at CCT and SIT in the same fashion and to the same entering freshman groups for the past two years. This information (see Appendix A) allowed us to look at changes at WPI in comparison with changes at the other schools in terms of many factors such as age, race, high school experience in terms of type of program and grades received, purpose for coming and educational goals, socioeconomic level (family occupations and income), financial resources and aid, anticipated major field of concentration, probable career or occupation and reasons for that choice, type of residence planned at the school, political orientation, objectives considered essential or important in life, attitudes toward government and politics, marital status, etc. In addition, two schools involved (WPI and CCT) inserted ten questions of their own devising which also related to the areas mentioned above.

The easiest way to characterize WPI, CCT, and SIT in terms of these findings is to say that WPI and CCT were virtually twins in the patterns of response to the entire set of questions (with a few exceptions to be explored below). WPI and SIT were also related but more like first cousins, i.e. WPI and SIT students differed more on several dimensions such as racial background (10% fewer Caucasians at SIT), highest degree planned at the school or anywhere (somewhat lower for SIT), family income (somewhat lower for SIT), family educational attainment (somewhat lower at SIT), etc. The differences, although visible (i.e. greater than 10% between schools), were not, in fact, tremendously large except in a few instances which relate to reasons for choosing the school--something reported previously from another data source. Additionally, all three schools were more similar to each other than to the national norms for the test which are also reported in the Appendix.

The focus here will be on WPI entering student profiles for September 1973 and September 1974 and for CCT student profiles taken at the same points in time. At WPI alone, there is a greater spread in the previous high school grades students achieved in 1974 than 1973, although the spread is slight. Nonetheless, although group averages are the same, the curve is flattening slightly with more A and more C students than in previous years. The students at CCT were already more evenly distributed on this dimension than those at WPI at both times. It seems, therefore, that WPI is attracting a less homogeneous student body on this dimension. Furthermore, a slightly higher proportion of WPI students currently entering plan to obtain degrees beyond the B.S. than in previous years, i.e. 3% of 1973 entrants and 30% of 1974 entrants plan to go beyond a M.A. or M.S. to a Ph.D., Ed.D., etc. At CCT, 3% (1973) and 19% (1974) plan to go beyond the master's level for such degrees. The trend toward expectations for higher degrees is evident in both schools but slightly stronger at WPI.

Another dimension on which there were changes at WPI and differences with CCT involves reasons which were important in selecting the school. The strongest reason at both schools (83% each) was the strong academic reputation of the school, but at WPI 59% in 1974 and 63% in 1975 came for the "special educational program" in comparison with 23% and 17% for CCT in those years, respectively. Another interesting difference between the statistically similar student classes involves their reasons for long term career choices. In the class entering in 1974 the major differences involved the following options:

Importance in career choice of:	WPI	CCT
high anticipated earnings	39%	51%
working with ideas	66%	48%

Findings for the class entering in 1973 were similar but less pronounced. It would appear, here, that WPI entering students increasingly value more interesting work than a necessarily high paying job, although both considerations are important at both schools.

The final important difference involved the sources of financial aid students at the schools in the study are receiving. Seventy-seven per cent of CCT students receive financial support from the state while only

16% do so at WPI. More WPI than CCT students receive support from a National Student Direct Loan Program, but the percentages are far smaller, i.e. 35% WPI and 9% CCT. Through a variety of resources and self-help, students at all schools are managing to pay the high tuitions. The test did not include a question on scholarship aid from the schools themselves.

As noted previously, student aptitude scores at WPI were slightly but not significantly lower than those of students at the comparison schools. Student achievement in terms of high school grades does not differ between groups, but WPI appears to be becoming more heterogeneous in this respect, while CCT has been all along.

SUMMARY--COMPOSITION OF THE SCHOOL

> WPI seems to be attracting the same type of student in terms of dimensions such as sex, race, socio-economic level, religious preference, family income, etc. as it has in previous years. This type of student, furthermore, is remarkably similar to the "typical" entrant at the comparison schools. Differences appear to be emerging in their ability as measured by high school grades: WPI is attracting a more heterogeneous group and their future educational and career expectations are higher. WPI students report being increasingly concerned with obtaining master's degrees and going beyond, and they are looking for careers that involve working with ideas, which is currently more important to them than a career with high anticipated earnings.

E. The Learning Environment--Perceptions of the School Environment--Use of Time

Although not dwelling on implementation mechanics in this report, it is of interest to see if WPI has created a learning environment which is different in some ways from that of a traditional comparison school. This could be reflected in student responses to an environment inventory and also in the students' use of their time. An adaptation of the Wahlberg Anderson Classroom Environment Inventory (which dealt with Physics classes and was normed on several thousand Physics freshmen) was made. The adaptation involved six individual word changes (from "class" to "school") on 103 items. This inventory clusters into 16 scales (see Appendix, Questionnaire C for complete inventory and scale results). Use of time information was obtained through a series of questions in Questionnaire B. (See Appendix.)

1. THE GENERAL ENVIRONMENT

Of the 16 clusters or scales in the environment inventory, nine indicated significant differences among all three schools and six between WPI and CCT. Given the differing nature of the SIT student body, even at the undergraduate level, significant findings based on WPI/CCT findings will be presented briefly. In comparison with CCT students, WPI students felt that their school environment was (or they were):

--less cohesive
--less diverse
--less formal
--had more speed (faster pace)
--were more affected by their environment
and --were less competitive.

These findings, again, reflect in large part a situation of change: e.g. less cohesion. The lack of diversity is possibly due to the fact that more options in courses and major field selections are offered at CCT. The informality is possibly a function of greater faculty contact (see below), and the faster pace undoubtedly reflects the seven-week semester, which students often reported as rushed in their interviews. Perceptions of being influenced by the environment may indicate in some way that WPI students are more conscious of the Plan, what it involves, its goals and expectations. This certainly dovetails with the greater thoughtfulness about what was happening to them that students reported in previous sections. Finally, the slightly lessened competition may be an indication that despite the pace and workload, the Distinction/Acceptable/No Record system or the entire Plan approach have removed or lessened the factor of competing with others to some slight degree. The differences, although statistically significant, are slight among all schools.

2. USE OF TIME

In Questionnaire B, students were asked to indicate the number of hours during an average week they spent in a variety of activities. Although in many respects differences were not found, in comparison with CCT WPI students seem to be spending their time less in lectures or classes (13 hours vs. 17 hours at CCT) but more with advisors (2 hours vs. 1 hour at CCT), more in IPI courses (22 hours vs. 19 hours at CCT), and more doing projects and experiments (7 hours vs. 4 hours at CCT). WPI students also spend more time earning money (6 hours vs. 4 hours at CCT). In terms of recreation, studying with others, sports and hobbies, sleeping, and taking exams, there were no significant differences between or among schools. From this information it would appear that WPI students overall are spending more time interacting with their educational environment than are students in a more traditional program, although the faculty contact hours may appear to be less.

SUMMARY--THE LEARNING ENVIRONMENT--PERCEPTIONS OF THE SCHOOL--USE OF TIME

The learning environment at WPI is perceived by students there as less cohesive, diverse, or formal than by students in a comparison program. It was also faster, less competitive, and appears to have more influence on them as well. Furthermore, students are spending more time in activities related to their overall learning, although less of this time is through a direct contact/lecture format than at comparison schools and more in self-governed activities.

V. CONCLUSIONS

The purpose of this evaluation was to provide developmental feedback to the implementers and participants in the WPI Plan while simultaneously documenting the process of change and outcomes it produced. Implementation features are explored in depth in a companion report. The report here focuses specifically on five broad areas (1) competence, (2) self concepts, (3) attitudes and educational goals, (4) background and ability factors, and (5) perceptions of the school environment and use of time. The findings are reported briefly, summarized globally, and attempt to relate to one key question: Is the WPI Plan an improvement or a mistake, a "success" or a "failure" from the student point of view? (The Appendices contain most of the information on which this summary report is based.)

Since the Plan's inception five years ago and the beginning of this evaluation three years ago, it seems fair to say that the program is beginning to succeed in terms of its original expectations or goals. Its students are equally if not more competent than previous WPI students. The environment created in a general sense, although rushed, is perceived as influential. Students at WPI spend more time on learning activities than those in comparison institutions and the time spent in experiments and project work is greater than the amount of time spent in class. The WPI Plan is a feature that attracts students to the school more prominently than do the programs at comparison engineering schools. The program also attracts a more heterogeneous group than the traditional WPI.

Entering WPI students have higher educational goals in general and value things such as the ability to work with ideas, the development of a capacity for lifelong learning, being an interesting individual, being of service to others, and changing the world for the better more strongly than students at comparison engineering schools.

It seems appropriate here to mention two important considerations:

(1) The full effects of this program cannot be ascertained at this point in time. (Indeed, longitudinal follow-up of Plan and non-Plan graduates is only now possible, and more or less striking differences could emerge once the Plan type of preparation is put to the test of the "real" world.)

(2) In depth coverage of specific aspects of this experimental program was not possible given limited resources and the broad mandate to measure any and all effects possible.

Hopefully the information contained in this report will be useful to some and helpful to those concerned both with the Plan specifically as well as with the implications of the successes and difficulties of this program for other schools.

LIST OF APPENDICES

A. American Council on Education Data

B. Restructuring Undergraduate Education at Worcester Polytechnic Institute

C. Student Questionnaire Findings

D. Student Interview Categorized Results

E. Project Evaluation Questionnaire Findings

F. Engineer-In-Training Test Scores

Note: The appendix contains only the first-run frequencies or results from each instrument. In the body of the report, at times, findings are included which are based on the myriad further analyses of sub-populations--e.g. WPI Plan vs. WPI non-Plan or WPI vs. CCT alone. Thus, some of the data reported in the appendix may appear not to match findings in the report.

APPENDIX A

AMERICAN COUNCIL ON EDUCATION DATA
WPI, CCT, SIT
NATIONAL NORMS

1. 1973
2. 1974

Control School I = Clarkson College of Technology

Control School II = Stevens Institute of Technology

American Council on Education

Summary of Data on Entering Freshmen for Fall

1973

	WPI				Control School I				Control School II				National Norms		
	# of Respondents	Male	Female	Total	# of Respondents	Male	Female	Total	# of Respondents	Male	Female	Total	Male	Female	Total
Number of Students	415	91.8	8.2	100.0	421	93.3	6.7	100.0	262	91.6	8.4	100.0	49.1	50.9	100.0
Age by December 31, 1973	415				420				262						
16 or younger		0.3	0.0	0.2		0.0	0.0	0.0		0.0	0.0	0.0	0.1	0.2	0.1
17		3.9	14.7	4.8		0.3	0.0	0.2		5.0	9.1	5.3	3.4	6.2	4.8
18		84.5	82.4	84.3		88.0	92.9	88.3		83.3	86.4	83.6	75.9	80.7	78.3
19		10.8	2.9	10.1		11.2	7.1	11.0		10.8	4.5	10.3	17.3	11.3	14.3
20		0.5	0.0	0.5		0.3	0.0	0.2		0.4	0.0	0.4	1.7	0.7	1.2
21		0.0	0.0	0.0		0.3	0.0	0.2		0.0	0.0	0.0	0.4	0.2	0.3
22		0.0	0.0	0.0		0.0	0.0	0.2		0.0	0.0	0.0	0.3	0.1	0.2
23-25		0.0	0.0	0.0		0.0	0.0	0.0		0.4	0.0	0.4	0.6	0.2	0.4
26-29		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.2	0.1	0.1
30 or older		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.2	0.2	0.2
Citizenship	414				414				261						
native born US citizen		96.3	100.0	96.6		96.4	100.0	96.6		90.8	100.0	91.6	96.4	96.5	96.5
naturalized US citizen		2.4	0.0	2.2		0.5	0.0	0.5		3.3	0.0	3.1	2.1	2.4	2.2
not a US citizen		1.3	0.0	1.2		3.1	0.0	2.9		5.9	0.0	5.4	1.5	1.1	1.3
Racial Background	412				417				260						
White/Caucasian		97.4	100.0	97.6		98.2	100.0	98.3		94.5	90.9	94.2	87.8	86.9	87.3
Black/Negro/Afro-American		0.8	0.0	0.7		0.5	0.0	0.5		1.7	0.0	1.5	9.6	10.8	10.2
American Indian		0.5	0.0	0.5		0.3	0.0	0.2		0.0	0.0	0.0	1.0	1.0	1.0
Oriental		0.3	0.0	0.7		0.0	0.0	0.0		0.8	0.0	0.8	0.8	0.7	0.7
Mexican-American/Chicano		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.6	0.5	0.5
Puerto Rican-American		0.0	0.0	0.2		0.0	0.0	0.0		0.8	4.5	1.2	0.4	0.4	0.4
Other		1.0	0.0	1.7		0.8	0.0	0.7		2.9	4.5	3.1	1.1	1.1	1.1
Year Graduated High School	414				420				261						
1973		98.7	97.0	98.6		98.5	100.0	98.6		99.2	100.0	99.2	95.5	97.1	96.3
1972		0.8	3.0	1.0		1.3	0.0	1.2		0.0	0.0	0.0	2.5	1.5	2.0
1971		0.0	0.0	0.0		0.3	0.0	0.2		0.0	0.0	0.0	0.5	0.3	0.4
1970 or earlier		0.0	0.0	0.0		0.0	0.0	0.0		0.4	0.0	0.4	1.0	0.5	0.7
HS equivalency (GED test)		0.0	0.0	0.0		0.0	0.0	0.0		0.4	0.0	0.4	0.3	0.2	0.3
never completed HS		0.5	0.0	0.5		0.0	0.0	0.0		0.0	0.0	0.0	0.2	0.3	0.3
Average High School Grade	409								262						
A or A+		7.4	36.4	9.8		15.3	32.1	16.4		20.0	36.4	21.4	7.1	10.1	8.7
A-		19.4	21.2	16.7		15.3	25.0	16.0		17.5	18.2	17.6	9.3	14.1	11.8
B+		33.0	33.3	33.0		28.6	28.6	28.6		30.0	36.4	30.5	20.2	27.8	24.0
B		24.7	6.1	23.2		21.7	10.7	21.0		22.5	9.1	21.4	25.6	27.3	26.5
B-		12.2	3.0	11.5		11.0	3.6	10.5		7.9	0.0	7.3	17.3	11.0	14.1
C+		1.9	0.0	1.7		5.0	0.0	4.8		1.2	0.0	1.1	11.5	5.8	8.6
C		1.8	0.0	1.2		2.8	0.0	2.6		0.8	0.0	0.8	8.6	3.8	6.2
D		0.0	0.0	0.0		0.3	0.0	0.2		0.0	0.0	0.0	0.3	0.1	0.2

	WPI				Control School I				Control School II				National Norms		
	# of Respondents	Male	Female	Total	# of Respondents	Male	Female	Total	# of Respondents	Male	Female	Total	Male	Female	Total
Distance Home to College	415				421				262						
5 miles or less		5.8	8.8	6.0		1.3	0.0	1.2		14.6	4.5	13.7	7.7	7.4	7.6
6-10 miles		8.7	17.6	9.4		2.0	3.6	2.1		13.3	13.6	13.4	8.8	7.7	8.2
11-50 miles		25.2	41.2	26.5		3.1	3.6	3.1		45.4	45.5	45.4	19.3	20.4	19.9
51-100 miles		32.0	20.6	31.1		5.1	7.1	5.2		14.2	22.7	14.9	14.8	17.0	15.9
101-500 miles		23.1	5.9	21.7		80.2	78.6	80.0		10.0	4.5	9.5	34.5	36.6	35.6
more than 500 miles		5.2	5.9	5.3		8.4	7.1	8.3		2.5	9.1	3.1	14.9	10.8	12.8
# College Applications	419				415				262						
this college only		32.5	47.1	33.7		22.4	11.1	21.7		23.7	22.7	23.7	36.4	38.0	37.2
one other		19.2	23.5	19.5		22.7	22.2	22.7		15.8	4.5	14.9	20.5	41.4	20.9
two others		17.8	29.4	18.8		24.0	44.4	25.3		22.9	22.7	22.9	17.9	17.3	17.6
three others		17.3	0.0	15.9		18.4	3.7	17.4		15.4	13.6	15.3	11.6	10.9	11.3
four others		7.1	0.0	6.5		6.9	18.5	7.6		9.6	27.3	11.1	6.6	6.1	6.4
five others		2.9	0.0	2.7		3.8	0.0	3.6		7.1	0.0	6.5	3.6	3.5	3.6
more than five others		3.1	0.0	2.9		1.8	0.0	1.7		5.4	9.1	5.7	3.4	2.8	3.1
# College Acceptances	373				386				240						
this college only		32.9	43.3	33.8		23.1	15.4	22.5		20.3	5.6	19.2	32.8	32.7	32.8
one other		26.2	43.3	27.6		27.8	26.9	27.7		20.7	5.6	19.6	27.0	27.2	27.1
two others		22.2	13.3	21.4		25.0	38.5	25.9		26.1	33.3	26.7	11.2	11.0	11.1
three others		12.5	0.0	11.5		15.8	3.8	15.0		18.0	27.8	18.8	11.2	11.0	11.1
four others		4.1	0.0	3.8		5.6	15.4	6.2		7.2	16.7	7.9	4.9	4.7	4.8
five others		0.9	0.0	0.8		1.9	0.0	1.8		5.0	0.0	4.6	1.9	2.1	2.0
more than five others		1.2	0.0	1.1		0.8	0.0	0.8		2.7	11.1	3.3	1.7	1.3	1.5
Highest Degree Planned Here	403				402				249						
none		0.5	3.0	0.7		1.6	0.0	1.5		0.0	0.0	0.0	4.5	5.3	4.9
associate (or equivalent)		0.5	0.0	0.7		0.3	0.0	0.2		0.0	0.0	0.0	2.5	3.8	3.2
bachelor's (B.A., B.S.)		76.5	97.0	78.2		72.3	55.6	71.1		48.7	68.4	50.2	76.1	76.2	76.1
master's (M.A., M.S.)		19.2	0.0	17.6		22.1	40.7	23.4		35.2	31.6	34.9	10.9	11.7	11.3
Ph.D. or Ed.D.		2.7	0.0	2.5		2.7	3.7	2.7		15.2	0.0	14.1	1.7	1.1	1.4
M.D.,D.C.,D.D.S. or D.V.M.		0.0	0.0	0.0		0.0	0.0	0.0		0.9	0.0	0.8	1.4	0.4	0.9
LL.B. or J.D. (law)		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	1.0	0.3	0.7
B.D. or M.Div. (divinity)		0.0	0.0	0.0		0.5	0.0	0.5		0.0	0.0	0.0	0.2	0.0	0.1
other		0.3	0.0	0.2		0.5	0.0	0.5		0.0	0.0	0.0	1.6	1.2	1.4
Highest Degree Planned Anywhere	380				371				237						
none		1.4	0.0	1.3		3.2	0.0	3.0		1.4	0.0	1.3	2.2	2.7	2.5
associate (or equivalent)		0.4	0.0	0.5		0.6	0.0	0.5		0.0	0.0	0.0	1.0	1.6	1.3
bachelor's (B.A., B.S.)		17.9	12.1	17.4		29.3	17.4	28.6		11.2	13.6	11.4	23.4	30.0	26.8
master's (M.A., M.S.)		45.2	45.5	45.3		40.2	43.5	40.4		36.7	50.0	38.0	34.0	43.1	38.7
Ph.D. or Ed.D.		30.5	33.3	30.8		21.0	39.1	22.1		46.5	31.8	45.1	15.2	11.9	13.5
M.D.,D.C.,D.D.S., or D.V.M.		2.6	6.1	2.9		2.0	0.0	1.9		2.8	4.5	3.0	12.4	5.3	8.9
LL.B. or J.D. (law)		0.9	3.0	1.1		1.7	0.0	1.6		0.5	0.0	0.4	8.9	3.4	6.1
B.D. or M.Div. (divinity)		0.0	0.0	0.0		0.6	0.0	0.5		0.0	0.0	0.0	0.8	0.2	0.5
other		0.9	0.0	0.8		1.4	0.0	1.3		0.9	0.0	0.8	2.2	1.7	1.9

	WPI				Control School I				Control School II				National Norms		
	# of Respondents	Male	Female	Total	# of Respondents	Male	Female	Total	# of Respondents	Male	Female	Total	Male	Female	Total
Reasons Very Important In Selecting This College															
parents wanted me to come	400	2.7	2.9	2.7	412	3.6	0.0	3.4	259	8.0	13.6	8.5	7.9	9.7	8.8
wanted live away from home	405	11.6	18.2	12.1	414	19.6	44.4	21.3	258	11.4	22.7	12.4	15.3	25.5	20.5
teacher advised me	393	3.6	12.1	4.3	407	5.5	3.8	5.4	257	11.1	13.6	11.3	5.6	5.7	5.7
good academic reputation	413	77.6	76.5	77.5	420	76.8	88.9	77.6	262	87.9	81.8	87.4	53.0	60.8	57.0
financial assistance	398	31.9	38.2	32.4	413	33.4	40.7	33.9	256	43.4	61.9	44.9	23.9	20.8	22.3
advice student/alumnus	399	10.7	20.6	11.5	410	12.8	7.7	12.4	254	15.1	9.1	14.6	20.2	21.5	20.9
special educ program	407	57.8	72.7	59.0	406	21.8	34.6	22.7	257	37.4	50.0	38.5	26.2	36.6	31.5
has low tuition	386	2.0	3.2	2.1	398	2.9	4.0	3.0	252	4.8	0.0	4.4	19.0	19.3	19.2
advice guidance counselor	393	8.6	12.1	8.9	406	10.0	11.5	10.1	257	19.1	27.3	19.8	9.7	9.1	9.4
wanted live at home	385	2.5	0.0	2.3	397	1.3	0.0	1.3	250	11.0	4.5	10.4	8.6	8.5	8.6
could not get a job	382	0.6	0.0	0.5	396	0.5	0.0	0.5	248	1.3	0.0	1.2	1.7	1.6	1.7
Siblings Under 21	396				402				252						
none		21.3	26.5	21.7		20.5	18.5	20.4		22.6	13.6	21.8	20.4	20.3	20.4
one		27.6	20.6	27.0		35.2	18.5	34.1		27.4	22.7	27.0	29.5	30.0	29.8
two		23.8	38.2	25.0		18.4	29.6	19.2		20.9	22.7	21.0	22.6	22.3	22.5
three		14.4	2.9	13.4		13.9	18.5	14.2		13.9	18.2	14.3	13.8	13.9	13.9
four or more		13.0	11.8	12.9		12.0	14.8	12.2		15.2	22.7	15.9	13.7	13.4	13.6
Siblings 21 or Older	364				359				203						
none		56.0	53.1	55.8		48.5	65.2	49.6		55.3	66.7	56.2	46.1	44.2	45.1
one		21.4	31.3	22.3		30.4	21.7	29.8		23.4	13.3	22.7	26.9	27.5	27.2
two		16.6	9.4	15.9		12.8	4.3	12.3		12.2	6.7	11.8	16.2	16.5	16.4
three		4.2	3.1	4.1		5.7	4.3	5.6		5.3	0.0	4.9	6.3	7.0	6.6
four or more		1.8	3.1	1.9		2.7	4.3	2.8		3.7	13.3	4.4	4.6	4.8	4.7
Siblings in College	344				344				205						
none		68.1	74.2	68.6		61.2	68.2	61.6		69.7	58.8	68.8	62.1	58.2	60.1
one		26.5	22.6	26.2		29.2	27.3	29.1		25.5	29.4	25.9	30.1	32.8	31.5
two		4.8	3.2	4.7		8.7	4.5	8.4		4.3	5.9	4.4	6.3	7.2	6.8
three		0.6	0.0	0.6		0.9	0.0	0.9		0.5	5.9	1.0	1.2	1.5	1.3
four or more		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.3	0.3	0.3
Father Currently Employed	403				410				248						
yes, full-time		93.5	87.5	93.1		94.0	88.9	93.7		89.5	90.0	89.5	91.4	91.4	91.4
yes, part-time		0.5	3.1	1.0		1.6	0.0	1.5		1.3	5.0	1.6	1.4	1.5	1.4
no		5.7	9.4	6.0		4.4	11.1	4.9		9.2	5.0	8.9	7.2	7.1	7.1
Father Employed When You Entered High School	398				408				247						
yes, full-time		97.8	93.8	97.5		96.6	100.0	96.8		95.6	95.0	95.5	95.0	95.2	95.1
yes, part-time		0.5	0.0	0.5		0.0	0.0	0.7		1.3	5.0	1.6	1.1	1.0	1.1
no		1.6	6.3	2.0		2.6	0.0	2.5		3.1	0.0	2.8	3.8	3.8	3.8
Mother Currently Employed									250						
yes, full-time		28.7	28.4	28.7		30.4	29.6	30.4		36.2	42.9	36.8	35.4	36.6	36.0
yes, part-time		21.6	26.5	22.0		22.2	14.8	21.7		15.7	33.3	17.2	17.0	16.2	16.6
no		49.7	44.1	49.2		47.4	55.6	47.9		48.0	23.8	46.0	47.6	47.2	47.4

	WPI				Control School I				Control School II				National Norms		
	# of Respondents	Male	Female	Total	# of Respondents	Male	Female	Total	# of Respondents	Male	Female	Total	Male	Female	Total
Mother Employed When You Entered High School	396				401				243						
yes, full-time		24.0	27.3	24.2		24.5	23.1	24.4		30.6	38.1	31.3	32.3	33.4	32.9
yes, part-time		19.0	21.2	19.2		17.3	23.1	17.7		13.1	28.6	14.4	15.6	15.6	15.6
no		57.0	51.5	56.6		58.1	53.8	57.9		56.3	33.3	54.3	52.2	50.9	51.5
Total Income Last Year Independent of Parents	410				414				258						
none		5.8	12.1	6.3		5.9	12.0	6.3		13.9	19.0	14.3	11.4	26.9	19.3
less than $500		21.8	39.4	23.2		24.2	24.0	24.2		26.2	47.6	27.9	27.1	37.4	32.3
$500 - $999		27.3	27.3	27.3		33.9	40.0	34.3		25.7	14.3	24.8	27.1	20.9	23.9
$1,000 - $1,999		29.7	18.2	28.8		26.2	12.0	25.4		26.2	9.5	24.8	22.4	10.8	16.5
$2,000 - $2,999		11.4	0.0	10.5		7.7	12.0	8.0		7.6	4.8	7.4	7.3	2.2	4.7
$3,000 - $4,999		3.2	3.0	3.2		1.5	0.0	1.4		0.4	0.0	0.4	3.0	1.0	2.0
$5,000 - $9,999		0.8	0.0	0.7		0.5	0.0	0.5		0.0	4.8	0.4	1.2	0.6	0.9
$10,000 or more		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.5	0.4	0.4
Financially Independent This Year	411				419				260						
yes		8.5	0.0	7.8		8.7	3.6	8.4		9.2	4.5	8.8	21.8	11.9	16.7
no		91.5	100.0	92.2		91.3	96.4	91.6		90.8	95.5	91.2	78.2	88.1	83.3
Financially Independent Last Year	410				416				258						
yes		5.9	0.0	5.4		3.4	0.0	3.1		5.5	4.5	5.4	10.3	8.8	9.5
no		94.1	100.0	94.6		96.6	100.0	96.9		94.5	95.5	94.6	89.7	91.2	90.5
Est. Parental Income	382				398				251						
less than $3,000		0.9	6.3	1.3		2.1	4.3	2.3		0.9	0.0	0.8	3.0	3.7	3.3
$3,000 - $3,999		0.9	0.0	0.8		0.5	0.0	0.5		1.3	0.0	1.2	2.4	3.0	2.7
$4,000 - $5,999		2.6	6.3	2.9		2.9	0.0	2.8		1.3	0.0	1.2	4.0	4.6	4.3
$6,000 - $7,999		4.3	3.1	4.2		4.0	8.7	4.3		6.1	4.8	6.0	5.8	6.3	6.0
$8,000 - $9,999		8.3	6.3	8.1		7.7	8.7	7.8		8.7	19.0	9.6	8.5	7.7	8.1
$10,000 - $12,499		16.6	18.8	16.8		17.6	17.4	17.6		19.6	19.0	19.5	15.4	14.0	14.7
$12,500 - $14,999		17.1	9.4	16.5		14.4	17.4	14.6		19.6	4.8	18.3	14.2	13.1	13.7
$15,000 - $19,999		19.1	18.8	19.1		20.8	26.1	21.1		23.0	28.6	23.5	18.1	16.4	17.3
$20,000 - $24,999		9.7	6.3	9.4		11.5	4.3	11.1		11.3	4.8	10.8	11.4	12.0	11.7
$25,000 - $29,999		6.3	9.4	6.5		7.2	4.3	7.0		1.7	0.0	1.6	5.6	5.8	5.7
$30,000 - $34,999		3.7	9.4	4.2		4.0	4.3	4.0		3.5	19.0	4.8	3.7	4.5	4.1
$35,000 - $39,999		2.3	3.1	2.4		1.6	0.0	1.5		1.7	0.0	1.6	2.1	2.6	2.3
$40,000 - $49,999		4.6	0.0	4.2		2.9	0.0	2.8		0.4	0.0	0.4	2.2	2.3	2.2
$50,000 or more		3.7	3.1	3.7		2.7	4.3	2.8		0.9	0.0	0.8	3.7	4.0	3.8

	WPI				Control School I				Control School II				National Norms		
	# of Respondents	Male	Female	Total	# of Respondents	Male	Female	Total	# of Respondents	Male	Female	Total	Male	Female	Total
Father's Education	413				420				258						
grammar school or less		4.0	5.9	4.1		3.6	0.0	3.3		8.5	9.1	8.5	6.6	6.4	6.5
some high school		9.8	8.8	9.7		12.8	10.7	12.6		14.8	4.5	14.0	12.7	12.1	12.4
high school graduate		23.2	23.5	23.2		27.3	28.6	27.4		30.5	27.3	30.2	26.9	24.2	25.5
post-secondary(not college)		7.1	8.8	7.3		5.6	14.3	6.2		6.8	4.5	6.6	4.5	5.2	4.9
some college		16.1	5.9	15.3		13.3	14.3	13.3		16.1	13.6	15.9	15.2	15.2	15.2
college degree		24.3	23.5	24.2		21.2	21.4	21.2		12.3	18.2	12.8	17.8	18.7	18.2
some graduate school		3.7	5.9	3.9		5.6	7.1	5.7		3.8	0.0	3.5	2.6	3.0	2.8
graduate degree		11.9	17.6	12.3		10.7	3.6	10.2		7.2	22.7	8.5	13.7	15.2	14.5
Mothers' Education	414				420				261						
grammar school or less		3.9	5.9	4.1		2.0	0.0	1.9		6.3	9.1	6.5	3.9	3.7	3.8
some high school		5.5	5.9	5.6		5.4	10.7	5.7		10.9	13.6	11.1	10.9	10.1	10.5
high school graduate		37.4	35.3	37.2		43.6	39.3	43.3		53.6	40.9	52.5	42.3	37.6	39.9
post-secondary(not college)		13.9	11.8	13.8		8.9	14.3	9.3		5.0	9.1	5.4	6.6	8.5	7.6
some college		14.2	8.8	13.8		15.1	14.3	15.0		9.6	9.1	9.6	15.1	16.1	15.6
college degree		16.8	23.5	17.4		17.3	14.3	17.1		8.8	4.5	8.4	14.1	15.8	15.0
some graduate school		2.4	8.8	2.9		2.6	0.0	2.4		0.8	4.5	1.1	2.4	2.7	2.5
graduate degree		5.8	0.0	5.3		5.1	7.1	5.2		5.0	9.1	5.4	4.7	5.6	5.1
Spouse's Education	3				6				2						
grammar school or less		0.0	0.0	0.0		16.7	0.0	16.7		0.0	0.0	0.0	8.6	7.1	8.1
some high school		33.3	0.0	33.3		0.0	0.0	0.0		50.0	0.0	50.0	10.5	9.5	10.2
high school graduate		33.3	0.0	33.3		33.3	0.0	33.3		0.0	0.0	0.0	40.6	30.3	36.9
post-secondary(not college)		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	4.4	3.7	4.2
some college		33.3	0.0	33.3		0.0	0.0	0.0		0.0	0.0	0.0	10.6	26.1	16.1
college degree		0.0	0.0	0.0		50.0	0.0	50.0		50.0	0.0	50.0	16.3	14.5	15.7
some graduate school		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	3.1	2.0	2.7
graduate degree		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	5.8	6.7	6.1
Probable Career Occupation	409				409				253						
artist (incl. performer)		0.0	0.0	0.0		0.3	0.0	0.2		0.0	0.0	0.0	2.4	4.7	3.6
business management		3.5	2.9	3.4		6.6	3.6	6.4		0.4	0.0	0.4	10.0	2.1	6.0
business (other)		0.0	0.0	0.0		4.5	14.3	5.1		0.0	0.0	0.0	7.8	6.2	7.0
clergy or religious worker		0.3	0.0	0.2		0.3	0.0	0.2		0.0	0.0	0.0	1.7	0.7	1.2
doctor (M.D. or D.D.S.)		1.6	2.9	1.7		1.0	0.0	1.0		2.2	4.8	2.4	9.4	3.4	6.3
educator (college teacher)		1.1	2.9	1.2		0.5	0.0	0.5		0.4	0.0	0.4	1.2	1.3	1.3
educator (secondary)		1.3	0.0	1.2		0.3	3.6	0.5		0.4	0.0	0.4	5.0	7.8	6.4
educator (elementary)		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.8	10.9	6.0
educator (specialist)		0.0	0.0	0.0		0.3	0.0	0.2		0.0	0.0	0.0	1.3	8.7	5.1
engineer		60.5	29.4	57.9		59.6	28.6	57.5		70.7	47.6	68.8	7.3	0.6	3.9
farmer or forester		0.0	0.0	0.0		0.5	3.6	0.7		0.0	0.0	0.0	2.8	0.8	1.8
health professional (non-M.D.)		0.0	2.9	0.2		0.3	7.1	0.7		0.0	0.0	0.0	5.4	11.2	8.3
homemaker		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.6	0.3
home economist or dietician		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	1.6	0.9
lawyer		0.5	2.9	0.7		1.0	0.0	1.0		0.9	0.0	0.8	7.9	3.1	5.4
nurse		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.1	6.1	3.2
research scientist		13.3	26.5	14.4		11.0	28.6	12.2		13.4	28.6	14.6	4.5	2.9	3.7
service worker		0.0	0.0	0.0		0.3	0.0	0.2		0.0	0.0	0.0	2.2	0.7	1.5
skilled worker		1.6	0.0	1.5		1.3	0.0	1.2		0.4	0.0	0.4	2.2	0.2	1.2

(continued on next page)

	WPI				Control School I				Control School II				National Norms		
	# of Respondents	Male	Female	Total	# of Respondents	Male	Female	Total	# of Respondents	Male	Female	Total	Male	Female	Total
Probable Career Occupation (continued)															
semi-skilled or unskilled worker		0.0	0.0	0.0		0.5	0.0	0.5		0.9	0.0	0.8	0.3	0.1	0.2
social or welfare worker		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	1.2	5.4	3.3
technologist		8.3	20.6	9.3		3.7	0.0	3.4		4.7	14.3	5.5	2.6	1.1	1.8
other occupation		2.1	2.9	2.2		2.9	7.1	3.2		2.2	0.0	2.0	11.7	6.8	9.2
unemployed		0.3	0.0	0.2		0.0	0.0	0.0		0.0	0.0	0.0	0.2	0.2	0.2
undecided		5.6	5.9	5.6		5.2	3.6	5.1		3.4	4.8	3.6	11.9	13.0	12.5
Probable Major Field of Study	403				412				233						
agriculture (incl. forestry)		0.0	0.0	0.0		0.3	0.0	0.2		0.0	0.0	0.0	2.5	0.4	1.4
arts (fine and performing)		0.0	3.0	0.2		0.3	0.0	0.2		0.0	0.0	0.0	4.9	9.0	7.0
biological sciences		3.8	6.1	4.0		0.5	3.6	0.7		0.0	0.0	0.0	9.8	6.2	7.9
business		2.2	3.0	2.2		11.2	17.9	11.7		0.5	0.0	0.4	19.3	8.1	13.4
education		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	6.6	24.9	16.1
English		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	1.3	2.9	2.1
engineering		65.9	36.4	63.5		65.6	32.1	63.3		76.3	50.0	73.8	10.1	0.6	5.1
health professions		0.5	0.0	0.5		0.0	3.6	0.2		0.9	0.0	0.9	4.7	12.5	8.8
history and geography		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	2.8	1.5	2.1
home economics		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	2.2	1.1
humanities (other)		0.3	0.0	0.2		0.0	0.0	0.0		0.0	0.0	0.0	2.5	4.4	3.5
mathematics and statistics		4.9	27.3	6.7		4.4	17.9	5.3		2.8	9.1	3.4	2.6	2.1	2.3
physics and chemistry		8.6	9.1	8.7		10.9	17.9	11.4		10.0	13.6	10.3	3.2	0.8	2.0
physical sciences (other)		1.4	3.0	1.5		0.5	3.6	0.7		1.4	4.5	1.7	1.9	0.4	1.1
psychology		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	2.9	5.4	4.2
social sciences (other)		0.3	0.0	0.2		0.3	3.6	0.5		0.0	0.0	0.0	7.9	5.5	6.7
social work		0.0	0.0	0.0		0.3	0.0	0.2		0.0	0.0	0.0	0.6	3.4	2.1
technical fields		11.1	12.1	11.2		3.4	0.0	3.2		5.7	13.6	6.4	4.8	1.2	2.9
other fields		0.3	0.0	0.2		1.0	0.0	1.0		0.0	4.5	0.4	6.3	3.0	4.6
undecided		0.8	0.0	0.7		1.3	0.0	1.2		2.4	4.5	2.6	5.3	5.6	5.5
Reasons Very Important for Long-Term Career Choice															
job openings available	375	41.1	55.9	42.4	403	36.4	39.3	45.9	243	47.1	45.5	46.9	46.6	53.3	50.1
rapid advancement	373	31.3	14.7	29.8	393	33.3	18.5	32.3	237	41.0	30.0	40.1	40.1	24.9	32.3
high anticipated earnings	383	40.4	32.4	39.7	403	45.6	39.3	45.2	243	50.5	33.3	49.0	46.6	29.1	37.6
respected occupation	373	22.1	20.6	22.0	396	20.6	11.1	19.9	241	30.5	28.6	30.3	33.8	25.7	29.6
independence	371	38.6	38.2	38.5	397	33.2	33.3	33.2	240	39.5	65.0	41.7	42.0	35.3	38.6
chance for steady progress	371	43.3	38.2	42.9	395	46.7	51.9	47.1	240	52.7	55.0	52.9	51.7	41.8	46.6
contribution to society	371	39.2	44.1	39.6	396	29.6	46.4	30.8	241	48.4	75.0	50.6	45.6	58.5	52.3
avoid pressure	369	13.4	8.8	13.0	398	14.0	7.4	13.6	243	14.8	15.0	14.8	16.0	17.6	16.8
work with ideas	370	57.1	55.9	57.0	395	48.1	40.7	47.6	240	55.5	70.0	56.7	47.0	55.2	51.2
be helpful to others	368	38.0	41.2	38.3	396	36.0	44.4	36.6	239	42.5	60.0	43.9	55.3	77.0	66.6
work with people	369	32.5	29.4	32.2	396	33.9	48.1	34.8	239	33.8	35.0	33.9	53.5	76.2	65.3
intrinsic interest in field	374	72.1	79.4	72.7	400	68.4	85.2	69.5	243	74.7	86.4	75.7	66.9	77.4	72.4

	WPI				Control School I				Control School II				National Norms		
	# of Respondents	Male	Female	Total	# of Respondents	Male	Female	Total	# of Respondents	Male	Female	Total	Male	Female	Total
Credit Hours to be Taken During Fall Term	413				416				245						
more than 18 hrs		0.8	0.0	0.7		0.8	0.0	0.7		24.0	10.0	22.9	9.7	2.5	6.0
16-18 hrs		96.3	97.1	96.4		85.8	71.4	84.9		67.1	75.0	67.8	41.4	46.3	43.9
12-15 hrs		2.9	2.9	2.9		13.1	28.6	14.2		7.6	15.0	8.2	44.2	47.2	45.7
9-11 hrs		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	2.9	2.7	2.8
6- 8 hrs		0.0	0.0	0.0		0.3	0.0	0.2		1.3	0.0	1.2	0.9	0.8	0.9
less than 6 hrs		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.9	0.4	0.6
Residence During Fall Term	415				420				260						
with parents or relatives		15.2	35.3	16.9		2.8	0.0	2.6		36.1	18.2	34.6	25.4	22.3	23.8
other private home or apt.		0.3	0.0	0.2		0.3	0.0	0.2		0.0	0.0	0.0	3.4	1.2	2.3
college dormitory		84.0	64.7	82.4		96.4	96.4	96.4		62.2	81.8	63.8	68.1	75.3	71.8
fraternity or sorority		0.0	0.0	0.0		0.0	0.0	0.0		0.4	0.0	0.4	0.6	0.1	0.4
other campus housing		0.5	0.0	0.5		0.3	3.6	0.5		1.3	0.0	1.2	1.6	0.7	1.1
other		0.0	0.0	0.0		0.3	0.0	0.2		0.0	0.0	0.0	0.9	0.3	0.6
Religious Preference	409				413				260						
Baptist		2.7	0.0	2.4		2.1	0.0	1.9		4.2	0.0	3.8	13.9	14.9	14.4
Congregational (U.C.C.)		10.4	5.9	10.0		2.3	0.0	2.2		0.0	0.0	0.0	1.7	1.9	1.8
Eastern Orthodox		1.3	2.9	1.5		0.3	0.0	0.2		1.3	4.5	1.5	0.6	0.5	0.6
Episcopal		3.5	8.8	3.9		4.9	7.1	5.1		3.8	4.5	3.8	3.3	4.3	3.8
Jewish		5.1	5.9	5.1		1.6	0.0	1.5		5.5	4.5	5.4	4.1	4.4	4.2
Latter Day Saints (Mormon)		0.0	0.0	0.0		0.3	0.0	0.2		0.0	0.0	0.0	0.2	0.2	0.2
Lutheran		2.9	0.0	2.7		5.7	3.6	5.6		2.5	4.5	2.7	5.5	5.1	5.3
Methodist		2.7	2.9	2.7		12.2	21.4	12.8		1.7	0.0	1.5	10.6	11.3	10.9
Muslim		0.0	0.0	0.0		0.0	0.0	0.0		0.8	0.0	0.8	0.1	0.1	0.1
Presbyterian		1.6	2.9	1.7		8.6	0.0	8.0		2.9	9.1	3.5	6.3	6.7	6.5
Quaker (Society of Friends)		0.3	0.0	0.2		0.3	0.0	0.2		0.0	0.0	0.0	0.3	0.3	0.3
Roman Catholic		44.0	52.9	44.7		35.8	57.1	37.3		54.6	45.5	53.8	32.6	30.6	31.6
Seventh Day Adventist		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.5	0.8	0.7
Unitarian-Universalist		0.5	5.9	1.0		0.3	0.0	0.2		0.4	0.0	0.4	0.4	0.5	0.5
other Protestant		3.2	0.0	2.9		2.9	3.6	2.9		1.7	0.0	1.5	5.8	5.7	5.7
other religion		3.5	0.0	3.2		2.9	0.0	2.7		3.4	0.0	3.1	3.5	3.7	3.6
none		18.4	11.8	17.8		20.0	7.1	19.1		17.2	27.3	18.1	10.6	9.0	9.8
Concern About Financing College	413				421				259						
no concern		28.2	23.5	27.8		24.7	17.9	24.2		28.6	19.0	27.8	37.5	30.6	34.0
some concern		48.5	47.1	48.4		54.2	53.6	54.2		51.3	66.7	52.5	45.9	49.7	47.9
major concern		23.2	29.4	23.7		21.1	28.6	21.6		20.2	14.3	19.7	16.6	19.7	18.2
Support From Part-Time or Summer Work	388				400				245						
none		12.8	10.0	12.6		13.0	25.0	13.7		18.7	10.0	18.0	27.8	30.4	29.2
$1 - $499		43.0	70.0	45.1		45.2	45.8	45.2		51.1	60.0	51.8	41.6	53.6	47.8
$500 - $999		2[illegible]1	10.0	27.6		29.8	20.8	29.2		19.1	25.0	19.6	21.9	13.3	17.5
$1,000 - $1,999		13.7	10.0	13.4		10.1	8.3	10.0		9.3	0.0	8.6	7.4	2.5	4.9
$2,000 - $4,000		1.4	0.0	1.3		1.6	0.0	1.5		1.8	5.0	2.0	1.1	0.2	0.6
over $4,000		0.0	0.0	0.0		0.3	0.0	0.2		0.0	0.0	0.0	0.2	0.0	0.1

	WPI				Control School I				Control School II				National Norms		
	# of Respondents	Male	Female	Total	# of Respondents	Male	Female	Total	# of Respondents	Male	Female	Total	Male	Female	Total
Support From Full-Time Employment	317				325				201						
none		95.2	92.9	95.0		95.0	100.0	95.4		93.4	94.4	93.5	87.8	93.4	90.7
$1 - $499		1.7	3.6	1.9		2.3	0.0	2.2		2.2	5.6	2.5	4.8	3.5	4.1
$500 - $999		1.4	3.6	1.6		2.0	0.0	1.8		2.7	0.0	2.5	3.5	2.0	2.7
$1,000 - $1,999		1.0	0.0	0.9		0.7	0.0	0.6		1.1	0.0	1.0	2.1	0.8	1.4
$2,000 - $4,000		0.7	0.0	0.6		0.0	0.0	0.0		0.5	0.0	0.5	1.1	0.3	0.6
over $4,000		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.7	0.1	0.4
Support From Savings	355				365				226						
none		32.9	36.7	33.2		38.0	34.8	37.8		42.5	52.6	43.4	47.8	45.0	46.3
$1 - $499		36.0	33.3	35.8		38.0	47.8	38.6		33.3	36.8	33.6	33.8	40.7	37.4
$500 - $999		15.7	16.7	15.8		13.5	13.0	13.4		15.5	5.3	14.6	10.6	8.5	9.5
$1,000 - $1,999		9.3	10.0	9.9		7.0	0.0	6.6		6.3	5.3	6.2	5.5	4.0	4.7
$2,000 - $4,000		4.6	3.3	4.5		2.6	4.3	2.7		2.4	0.0	2.2	1.7	1.3	1.5
over $4,000		0.9	0.0	0.8		0.9	0.0	0.8		0.0	0.0	0.0	0.6	0.5	0.5
Support From Spouse	390				310				181						
none		99.6	100.0	99.7		97.9	100.0	98.1		99.4	100.0	99.4	97.7	97.9	97.8
$1 - $499		0.0	0.0	0.0		0.7	0.0	0.6		0.0	0.0	0.0	0.7	0.7	0.7
$500 - $999		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.4	0.3	0.4
$1,000 - $1,999		0.4	0.0	0.3		0.3	0.0	0.3		0.0	0.0	0.0	0.5	0.5	0.5
$2,000 - $4,000		0.0	0.0	0.0		1.0	0.0	1.0		0.0	0.0	0.0	0.3	0.4	0.3
over $4,000		0.0	0.0	0.0		0.0	0.0	0.0		0.6	0.0	0.6	0.4	0.3	0.3
Support From Parental Family	386				389				237						
none		11.6	12.1	11.7		11.3	12.0	11.3		19.2	11.1	18.6	24.1	12.7	18.1
$1 - $499		12.7	12.1	12.7		17.3	20.0	17.5		14.2	11.1	13.9	21.3	20.9	21.1
$500 - $999		13.6	21.2	14.2		12.9	12.0	12.9		16.0	22.2	16.4	14.2	14.7	14.5
$1,000 - $1,999		15.3	18.2	15.5		19.0	16.0	18.8		24.2	27.8	24.5	17.3	20.7	19.1
$2,000 - $4,000		30.6	24.2	30.1		30.8	32.0	30.8		22.4	27.8	22.8	16.0	20.7	18.5
over $4,000		16.1	12.1	15.8		8.8	8.0	8.7		4.1	0.0	3.8	7.1	10.2	8.8
Support From Parent's Military Service Benefit	326				333				199						
none		97.0	92.6	96.6		96.5	100.0	96.7		95.6	100.0	96.0	95.9	96.1	96.0
$1 - $499		2.0	3.7	2.1		1.9	0.0	1.8		2.2	0.0	2.0	1.9	2.0	2.0
$500 - $999		0.0	3.7	0.3		0.6	0.0	0.6		0.5	0.0	0.5	0.9	0.8	0.8
$1,000 - $1,999		0.0	0.0	0.0		0.3	0.0	0.3		1.6	0.0	1.5	0.7	0.7	0.7
$2,000 - $4,000		1.0	0.0	0.9		0.0	0.0	0.0		0.0	0.0	0.0	0.3	0.2	0.3
over $4,000		0.0	0.0	0.0		0.6	0.0	0.6		0.0	0.0	0.0	0.3	0.1	0.2

	WPI				Control School I				Control School II				National Norms		
	# of Respondents	Male	Female	Total	# of Respondents	Male	Female	Total	# of Respondents	Male	Female	Total	Male	Female	Total
Support From Parent's Social Security Benefit	321				332				201						
none		95.2	89.3	94.7		94.8	95.7	94.9		92.4	100.0	93.0	93.2	92.2	92.7
$1 - $499		2.0	3.6	2.2		1.6	4.3	1.8		3.3	0.0	3.0	3.5	4.5	4.1
$500 - $999		1.0	3.6	1.2		2.3	0.0	2.1		2.2	0.0	2.0	1.8	1.8	1.8
$1,000 - $1,999		1.4	3.6	1.6		1.0	0.0	0.9		2.2	0.0	2.0	1.2	1.2	1.2
$2,000 - $4,000		0.3	0.0	0.3		0.3	0.0	0.3		0.0	0.0	0.0	0.3	0.3	0.3
over $4,000		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.1	0.1	0.1
Support From Personal Military Service Benefit	318				323				196						
none		100.0	100.0	100.0		100.0	100.0	100.0		100.0	100.0	100.0	97.9	99.7	98.8
$1 - $499		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.4	0.1	0.2
$500 - $999		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.3	0.1	0.2
$1,000 - $1,999		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.7	0.1	0.4
$2,000 - $4,000		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.4	0.0	0.2
over $,000		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.6	0.0	0.3
Scholarships or Grants	369				384				235						
none		37.1	12.5	35.0		18.1	8.3	17.4		16.7	5.0	15.7	54.1	51.3	52.6
$1 - $499		8.0	21.9	9.2		19.2	0.0	18.0		3.3	0.0	3.0	14.8	21.5	18.3
$500 - $999		9.2	6.3	8.9		21.9	36.5	22.9		12.1	5.0	11.5	11.6	12.1	11.8
$1,000 - $1,999		28.8	43.8	30.1		26.9	33.3	27.3		47.0	70.0	48.9	10.1	10.6	10.4
$2,000 - $4,000		16.3	15.6	16.3		13.1	20.8	13.5		20.0	20.0	20.0	5.1	4.1	4.6
over $4,000		0.6	0.0	0.5		0.8	0.0	0.8		0.9	0.0	0.9	4.3	0.4	2.3
Federally Insured or College Loans	339				350				214						
none		55.0	53.6	54.9		53.5	39.1	52.6		51.8	42.1	50.9	74.0	73.2	73.6
$1 - $499		5.1	7.1	5.3		2.4	0.0	2.3		4.6	10.5	5.1	5.0	6.2	5.6
$500 - $999		11.6	21.4	12.4		5.5	4.3	5.4		10.3	10.5	10.3	7.3	8.4	7.9
$1,000 - $1,999		26.4	14.3	25.4		33.9	47.8	34.9		28.2	36.8	29.0	9.3	10.6	10.0
$2,000 - $4,000		1.3	3.6	1.5		4.3	8.7	4.6		4.6	0.0	4.2	2.3	1.3	1.8
over $4,000		0.6	0.0	0.6		0.3	0.0	0.3		0.5	0.0	0.5	2.1	0.4	1.2
Other Repayable Loan	326				326				195						
none		87.6	85.7	87.4		95.9	90.9	86.2		89.9	82.4	89.2	91.6	89.9	90.7
$1 - $499		1.0	3.6	1.2		3.0	0.0	2.8		1.7	0.0	1.5	2.7	3.1	2.9
$500 - $999		3.7	3.6	3.7		3.3	4.5	3.4		1.7	5.9	2.1	2.3	2.9	2.6
$1,000 - $1,999		5.0	7.1	5.2		6.9	4.5	6.7		5.1	11.8	5.6	2.3	3.1	2.7
$2,000 - $4,000		2.3	0.0	2.1		1.0	0.0	0.9		1.1	0.0	1.0	0.6	0.8	0.7
over $4,000		0.3	0.0	0.3		0.0	0.0	0.0		0.6	0.0	0.6	0.4	0.3	0.4
Other Sources of Support	302				308				188						
none		98.2	96.2	98.0		94.1	100.0	94.5		96.5	88.2	95.7	90.2	94.3	92.3
$1 - $499		0.4	0.0	0.3		2.1	0.0	1.9		1.8	11.8	2.7	2.7	2.7	2.7
$500 - $999		0.0	0.0	0.0		1.4	0.0	1.3		0.0	0.0	0.0	1.2	1.3	1.3
$1,000 - $1,999		0.4	0.0	0.3		1.0	0.0	1.0		1.2	0.0	1.1	0.9	1.0	0.9
$2,000 - $4,000		1.1	0.0	1.0		0.7	0.0	0.6		0.6	0.0	0.5	0.6	0.5	0.5
over $4,000		0.0	3.8	0.3		0.7	0.0	0.6		0.0	0.0	0.0	4.5	0.2	2.3

	WPI				Control School I				Control School II				National Norms		
	# of Respondents	Male	Female	Total	# of Respondents	Male	Female	Total	# of Respondents	Male	Female	Total	Male	Female	Total
Veteran	414				421				261						
no		100.0	97.1	99.8		100.0	100.0	100.0		99.6	100.0	99.6	98.8	100.0	99.4
yes, served in SE Asia		0.0	2.9	0.2		0.0	0.0	0.0		0.0	0.0	0.0	0.5	0.0	0.3
yes, didn't serve in SE Asia		0.0	0.0	0.0		0.0	0.0	0.0		0.4	0.0	0.4	0.7	0.0	0.3
Objectives Considered Essential or Very Important															
achieve in a performing art	412	10.6	14.7	10.9	411	12.3	14.3	12.4	259	13.9	9.1	13.5	16.9	25.9	21.5
be authority in my field	412	64.8	61.8	64.6	414	56.7	60.7	57.0	260	66.8	72.7	67.3	68.2	59.6	63.8
influence political struct.	414	12.4	11.8	12.3	410	8.9	7.4	8.8	258	13.6	4.5	12.8	19.3	12.0	15.6
influence social values	412	19.6	23.5	19.9	411	16.1	14.8	16.1	258	20.8	27.3	21.3	30.8	35.5	33.2
raise a family	412	47.1	38.2	46.4	410	53.9	50.0	53.7	259	58.6	36.4	56.8	55.7	57.3	56.5
have admin. responsibility	411	25.1	15.2	24.3	409	28.9	17.9	28.1	260	30.3	22.7	29.6	31.9	20.1	25.8
be very well-off financially	411	59.4	38.2	57.7	412	62.8	53.6	62.1	258	62.3	40.9	60.5	61.6	42.0	51.6
help others in difficulty	414	47.4	50.0	47.6	411	44.4	60.7	45.5	259	46.8	63.6	48.3	58.8	75.9	67.6
be successful in my own business	414	40.0	17.6	38.2	411	36.0	39.3	36.3	257	43.4	22.7	41.6	48.0	29.7	38.7
be involved in environmental cleanup	412	41.3	32.4	40.5	412	38.0	35.7	37.9	258	61.0	59.1	60.9	34.6	33.0	33.8
develop philosophy of life	413	66.0	79.4	67.1	412	62.0	64.3	62.1	[illegible]	64.3	77.3	65.4	68.0	76.8	72.5
become a community leader	412	18.3	23.5	18.7	411	20.9	14.3	20.4	258	26.3	22.7	26.0	29.2	36.6	33.0
keep up with political affairs	413	40.4	55.9	41.6	411	39.9	35.7	39.7	259	31.6	40.9	32.4	47.0	43.2	45.0
Agree Strongly or Somewhat															
government not controlling pollution	412	90.2	100.0	91.0	410	83.6	92.6	84.1	258	87.3	85.7	87.2	87.0	89.9	88.5
government not protecting consumer	412	78.0	97.1	79.6	405	67.8	80.8	68.6	257	80.9	90.9	81.7	74.6	80.9	77.8
government not desegregating quickly	403	46.6	52.9	47.1	401	36.5	30.8	36.2	250	48.7	65.0	50.0	45.1	50.4	47.8
too many rights for criminals	399	56.7	50.0	56.1	401	49.6	15.4	47.4	247	62.8	57.1	62.3	55.0	42.0	43.4
people should be paid equally	407	18.8	14.7	18.4	409	18.8	14.8	18.6	250	23.0	45.0	24.8	25.5	24.3	24.8
women's activities best in home	405	29.6	5.9	27.7	409	31.0	17.7	29.6	247	38.5	33.3	38.1	39.9	17.8	28.6
wealthy should pay more taxes	411	79.8	88.2	80.5	408	79.5	85.2	79.9	253	82.7	86.4	83.0	76.0	70.8	73.4
marijuana should be legalized	410	56.6	52.9	56.3	403	50.5	33.3	49.4	254	48.9	52.4	49.2	48.8	44.5	46.6
discourage large families	407	79.4	81.8	79.6	405	76.2	70.4	75.8	249	71.9	85.7	73.1	67.6	64.4	65.9
women should get job equality	411	94.7	100.0	95.1	411	90.6	96.4	91.0	252	93.1	100.0	93.7	89.1	96.7	93.0
can do little to change society	410	38.3	35.3	38.0	407	46.3	33.3	45.5	255	47.0	71.4	49.0	43.3	35.7	39.4

(continued on next page)

	WPI				Control School I				Control School II				National Norms		
	# of Respondents	Male	Female	Total	# of Respondents	Male	Female	Total	# of Respondents	Male	Female	Total	Male	Female	Total
Agree Strongly or Somewhat (continued)															
col regulate students off campus	409	4.8	8.8	5.1	408	7.3	0.0	6.9	251	12.2	23.8	13.1	12.5	10.3	11.4
benefit of college is monetary	406	46.5	25.0	44.8	408	54.3	37.0	53.2	254	53.9	31.8	52.0	57.2	43.7	50.3
students help evaluate faculty	408	88.0	88.2	88.0	407	74.5	80.8	74.9	251	73.9	76.2	74.1	75.2	76.5	75.9
abolish college grades	407	59.5	67.6	60.2	408	30.6	30.8	30.6	251	26.1	28.6	26.3	34.4	34.6	34.5
de-emphasize organized sports	406	34.0	39.4	34.5	405	20.1	3.8	19.0	253	43.5	42.9	43.5	25.0	22.9	23.9
regulate student publications	407	14.2	20.6	14.7	405	12.6	10.7	12.5	251	25.7	38.1	26.7	26.3	19.7	22.9
pref treatment for disadvantaged	405	25.3	29.4	25.7	409	27.5	22.2	27.1	254	28.9	31.8	29.1	38.3	37.5	37.9
col too lax on student protests	404	37.0	20.6	35.6	395	36.8	12.0	35.2	249	35.5	42.9	36.1	40.4	32.4	36.3
adopt open admissions at pub col	409	45.1	41.2	44.7	408	22.3	15.4	21.8	250	24.9	19.0	24.4	30.3	27.2	28.7
use same degree standard for all	406	85.5	73.5	84.5	407	81.3	70.4	80.6	253	84.5	85.7	84.6	78.8	76.0	77.4
Political Orientation	403				401				254						
far left		3.2	3.1	3.2		2.7	0.0	2.5		3.8	0.0	3.5	2.6	1.6	2.1
liberal		40.2	56.3	41.4		33.9	26.9	33.4		31.2	40.0	31.9	33.8	33.0	33.4
middle of-the-road		39.4	25.0	38.2		45.9	53.8	45.6		48.7	40.0	48.0	46.5	51.6	49.1
conservative		16.7	12.5	16.4		16.3	19.2	16.5		15.4	20.0	15.7	16.3	13.5	14.9
far right		0.5	3.1	0.7		1.3	0.0	1.2		0.9	0.0	0.8	0.8	0.3	0.5
Marital Status	410				416				261						
presently married		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.8	0.7	0.8
presently engaged		1.6	2.9	1.7		2.1	7.4	2.4		0.8	9.1	1.5	1.8	2.5	2.2
seeing one person only		28.2	32.4	28.5		30.1	25.9	29.8		30.1	27.3	29.9	33.1	36.0	34.6
dating but no one steadily		38.6	50.0	39.5		41.6	55.6	42.5		35.1	36.4	35.2	46.3	43.9	45.1
not dating in recent months		31.6	14.7	30.2		26.2	11.1	25.2		33.9	27.3	33.3	17.9	16.8	17.4
How Many Children Now	414				415				257						
none		99.7	100.0	99.8		99.5	100.0	99.5		100.0	100.0	100.0	98.9	99.1	99.0
one		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.6	0.5	0.5
two		0.0	0.0	0.0		0.3	0.0	0.2		0.0	0.0	0.0	0.2	0.2	0.2
three		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.1	0.1	0.1
four		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.1	0.1	0.1
five or more		0.3	0.0	0.2		0.3	0.0	0.2		0.0	0.0	0.0	0.2	0.1	0.1

	WPI				Control School I				Control School II				National Norms		
	# of Respondents	Male	Female	Total	# of Respondents	Male	Female	Total	# of Respondents	Male	Female	Total	Male	Female	Total
Total Children Expected	398				398				252						
none		17.3	9.1	16.6		18.3	7.7	17.6		14.8	36.4	16.7	17.2	11.5	14.3
one		2.7	12.1	3.5		2.7	0.0	2.5		3.9	4.5	4.0	2.5	2.7	2.6
two		54.5	54.5	54.5		47.8	53.8	48.2		53.0	45.5	52.4	45.1	43.4	44.2
three		17.3	18.2	17.3		19.4	15.4	19.1		16.1	13.6	15.9	21.1	22.5	21.8
four		5.8	6.1	5.8		6.2	3.8	6.0		5.7	0.0	5.2	8.4	13.0	10.8
five or more		2.5	0.0	2.3		5.6	19.2	6.5		6.5	0.0	6.0	5.7	6.9	6.4
Students Estimate Chances Are Very Good That They Will															
change major field	412	14.8	11.8	14.6	417	10.0	7.1	9.8	258	8.9	18.2	9.7	15.7	16.7	16.2
change career choice	412	10.3	26.5	11.7	415	8.5	10.7	8.7	257	9.4	9.1	9.3	14.5	16.4	15.5
fail one or more courses	410	7.4	5.9	7.3	417	8.7	14.3	9.1	258	5.1	13.6	5.8	2.9	1.9	2.4
graduate with honors	412	8.7	14.7	9.2	416	7.2	17.9	7.9	257	11.5	22.7	12.5	11.2	8.5	9.8
be elected to student office	411	2.1	0.0	1.9	415	1.6	10.7	2.2	257	3.8	0.0	3.5	3.1	2.0	2.5
join a social frat or sorority	412	30.2	38.2	30.8	416	20.6	10.7	20.0	255	29.1	19.0	28.2	16.3	17.9	17.1
live in a coed dorm	409	19.5	70.6	23.7	413	15.1	71.4	18.9	257	8.9	45.5	12.1	19.5	21.7	20.6
live in a commune while in col	411	0.5	0.0	0.5	416	0.3	0.0	0.2	257	1.3	0.0	1.2	1.8	1.8	1.8
be elected to an honor society	411	5.3	8.8	5.6	413	4.4	7.4	4.6	257	7.7	22.7	8.9	5.3	5.3	5.3
make at least a "B" avg.	406	30.0	45.5	31.3	416	36.2	55.6	37.5	257	37.6	40.9	37.9	35.5	36.5	36.0
need extra time to complete degree	412	2.1	0.0	1.9	415	2.3	0.0	2.2	258	1.7	0.0	1.6	4.4	3.9	4.2
work at outside job	411	24.1	35.3	25.1	417	15.9	25.0	16.5	257	16.6	22.7	17.1	27.3	30.1	28.8
seek vocational counseling	412	9.0	14.7	9.5	413	6.0	10.7	6.3	256	12.0	18.2	12.5	10.5	13.3	11.9
seek individual counseling	412	7.7	8.8	7.8	415	3.1	10.7	3.6	254	7.3	9.1	7.5	7.3	5.7	6.4
enroll in honors courses	409	12.3	32.4	13.9	412	4.7	10.7	5.1	254	15.9	31.8	17.3	8.5	8.2	8.4
get a bachelor's degree	412	87.6	90.9	87.9	416	82.5	78.6	82.2	256	79.5	81.8	79.7	72.8	76.8	74.9
drop out temporarily	409	0.8	2.9	1.0	417	1.0	0.0	1.0	257	0.4	0.0	0.4	1.9	2.3	2.1
drop out permanently	411	0.3	0.0	0.2	415	0.5	0.0	0.5	255	0.4	0.0	0.4	1.2	1.2	1.2
transfer to another col	411	2.7	5.9	2.9	414	6.0	3.6	5.8	255	[illegible]	0.0	3.1	11.8	15.3	13.6
enter armed forces	410	0.8	0.0	0.7	418	1.0	0.0	1.0	253	[illegible]	0.0	0.8	3.5	1.0	2.2
be satisfied with col	399	66.0	73.5	66.7	410	55.2	78.6	56.8	254	[illegible]	40.9	55.5	53.1	63.6	58.5
be more successful than most	408	16.0	5.9	15.2	412	14.3	0.0	13.3	255	15.0	4.5	14.1	22.1	13.9	17.9
find a job in preferred field	409	60.5	55.9	60.1	417	60.5	59.3	60.4	254	60.9	38.1	59.1	59.0	55.4	57.2
marry while in college	412	3.4	8.8	3.9	413	5.2	3.6	5.1	258	5.5	4.5	5.4	5.7	7.8	6.8
marry within a year after college	411	14.6	20.6	15.1	414	18.7	28.6	19.3	255	16.3	4.5	15.3	17.6	19.8	18.7

	WPI				Control School I				Control School II				National Norms		
	# of Respondents	Male	Female	Total	# of Respondents	Male	Female	Total	# of Respondents	Male	Female	Total	Male	Female	Total
OPTIONAL ITEMS															
Of the following, the main positive factors influencing my choice of college here was:															
my desire for a self-reliant education	387	26.2	25.0	26.1	373	41.0	40.7	41.0							
the flexibility of the choice of courses		32.1	28.1	31.8		21.4	25.9	21.7							
the amount and kind of financial aid		7.3	6.3	7.2		21.4	22.2	21.4							
the non-traditional program		24.5	37.5	25.6		8.1	3.7	7.8							
project work		9.9	3.1	9.3		8.1	7.4	8.0							
Of the following, the main negative factor I had to deal with in making my choice of college here was:															
the lack of a clear understanding of the school's educational plan	396	19.2	6.3	18.2	396	11.1	10.7	11.1							
the relative lack of liberal arts courses		6.3	18.8	7.3		7.6	17.9	8.3							
the high cost of private vs. public higher education		54.1	59.4	54.5		54.1	46.4	53.5							
traditional aspects of technology education		11.8	12.5	11.9		10.6	17.9	11.1							
considerable distance from home		8.5	3.1	8.1		16.6	7.1	15.9							
For me, the following aspect of non-academic life seemed most promising to me:															
athletic activities	394	28.7	3.2	26.6	382	28.7	11.1	27.5							
non-athletic clubs and activities		27.3	64.5	30.2		19.2	25.9	19.6							
dating		12.7	22.6	13.5		12.1	25.9	13.1							
surrouding cultural opps.		14.9	6.5	14.2		7.9	14.8	8.4							
surrounding outdoor recreation		16.5	3.2	15.5		32.1	22.2	31.4							
Of the following, first heard of this school through:															
relative	405	24.5	30.3	24.9	405	16.2	14.3	16.0							
HS guidance counselors and teachers		19.6	30.3	20.5		21.0	17.9	20.7							
my own research		28.2	12.1	26.9		26.5	17.9	25.9							
friends		22.6	21.2	22.5		18.0	21.4	18.3							
college publications		5.1	6.1	5.2		18.3	28.6	19.0							

	WPI				Control School I				Control School II				National Norms		
	# of Respondents	Male	Female	Total	# of Respondents	Male	Female	Total	# of Respondents	Male	Female	Total	Male	Female	Total
To the extent that this school's location influenced my choice of college, I thought the following factor most important:															
relatively urban location	396	16.5	9.5	15.9	393	4.1	3.7	4.1							
relatively rural location		6.0	3.1	5.8		66.1	66.7	66.2							
less than 5 hrs from home		11.3	6.3	10.9		18.3	14.8	18.1							
less than 2 hrs from home		53.6	68.8	54.8		5.7	3.7	5.6							
in desirable section of town		12.6	12.5	12.6		5.7	11.1	6.1							
Of the following complimentary terms, I would like most to be known as:															
independent	402	18.1	12.5	17.7	395	17.1	11.5	16.7							
cooperative		10.5	3.1	10.0		10.6	11.5	10.6							
responsible		42.7	28.1	41.5		42.3	26.9	41.3							
efficient		11.6	3.1	10.9		10.0	7.7	9.9							
sincere		17.0	53.1	19.9		20.1	42.3	21.5							
In communication with our admission office, what I found most accommodating to my needs was:															
the high school visitation	401	4.9	3.0	4.7	383	6.5	7.1	6.5							
interview at the college		48.4	42.4	47.9		31.8	46.4	32.9							
college night		1.6	0.0	1.5		4.2	7.1	4.4							
sincerity & helpfulness of representative		31.5	33.3	31.7		22.8	21.4	22.7							
speed & efficiency of response of rep.		13.6	21.2	14.2		34.6	17.9	33.4							
In communication with our admission office, what I found least accommodating to my needs was:															
the high school visitation	372	38.5	27.6	37.6	354	31.7	42.3	32.5							
interview at the college		11.7	3.4	11.0		18.9	7.7	18.1							
college night		41.1	62.1	42.7		34.1	30.8	33.9							
sincerity & helpfulness of representative		2.6	0.0	2.4		5.2	7.7	5.4							
speed & efficiency of response of rep.		6.1	6.9	6.2		10.2	11.5	10.1							
In the following areas, college information was most adequate for me in regard to:															
athletics--intercol.	376	18.1	12.9	17.6	344	20.6	4.0	19.4							
athletics--intramural		15.5	6.5	14.7		20.0	12.0	19.4							
counseling		60.5	71.0	61.3		45.3	64.0	46.7							
health services		4.6	9.7	5.0		6.5	12.0	7.0							
dev. reading course		1.4	0.0	1.3		7.5	8.0	7.5							
In the following areas, college information was least adequate for me in regard to:															
athletics--intercol.	376	11.6	15.6	12.0	344	16.6	24.0	17.2							
athletics--intramural		12.8	15.6	13.0		18.6	12.0	17.7							
counseling		4.9	6.3	5.1		12.5	0.0	11.6							
health services		27.6	21.9	27.1		32.6	48.0	33.7							
dev. reading course		43.0	40.6	42.8		20.1	16.0	19.8							

KCC:hk
4-26-75

American Council on Education

Summary of Data on Entering Freshmen for Fall

1974

	WPI				Control School I				Control School II				National Norms		
	# of Respondents	Male	Female	Total	# of Respondents	Male	Female	Total	# of Respondents	Male	Female	Total	Male	Female	Total
Number of Students	443	91.4	8.6	100.0	303	96.7	3.3	100.0	236	91.5	8.5	100.0	50.4	49.6	100.0
Age by December 31, 1974	443				303				236						
16 or younger		0.7	0.0	0.7		0.0	0.0	0.0		0.0	0.0	0.0	0.1	0.2	0.1
17		3.7	13.2	4.5		2.0	0.0	2.0		6.0	0.0	5.5	2.8	5.6	4.2
18		86.4	84.2	86.2		91.5	90.0	91.4		82.9	95.0	83.9	75.4	79.4	77.4
19		7.9	2.6	7.4		6.1	10.0	6.3		10.2	5.0	9.7	18.0	12.8	15.4
20		0.7	0.0	0.7		0.3	0.0	0.3		0.9	0.0	0.8	2.1	1.0	1.5
21		0.2	0.0	0.2		0.0	0.0	0.0		0.0	0.0	0.0	0.6	0.3	0.5
22		0.2	0.0	0.2		0.0	0.0	0.0		0.0	0.0	0.0	0.3	0.1	0.2
23-25		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.5	0.2	0.3
26-29		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.2	0.1	0.2
30 or older		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.1	0.2	0.2
Racial Background	440				301				235						
White/Caucasian		96.8	100.0	97.0		98.6	90.0	98.3		89.3	60.0	86.8	87.0	84.9	85.9
Black/Negro/Afro-American		0.7	0.0	0.7		0.7	0.0	0.7		3.7	35.0	6.4	9.9	12.1	11.0
American Indian		0.7	0.0	0.7		1.4	0.0	1.3		0.0	0.0	0.0	0.8	0.9	0.8
Oriental		1.7	0.0	1.6		0.3	0.0	0.3		2.3	5.0	2.6	1.1	0.9	1.0
Mexican-American/Chicano		0.0	0.0	0.0		0.3	0.0	0.3		0.0	0.0	0.0	0.7	0.6	0.7
Puerto Rican-American		0.2	0.0	0.2		0.3	0.0	0.3		0.9	0.0	0.9	0.7	0.9	0.8
Other		1.2	0.0	1.1		1.4	10.0	1.7		7.0	0.0	6.4	1.7	1.5	1.6
Year Grad. from High School	441				302				236						
1974		98.3	100.0	98.4		99.3	100.0	99.3		99.5	100.0	99.6	94.8	96.2	95.5
1973		1.5	0.0	1.4		0.7	0.0	0.7		0.5	0.0	0.4	2.9	2.1	2.5
1972		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.8	0.4	0.6
1971		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	1.0	0.7	0.8
HS equivalency (GED test)		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.3	0.3	0.3
never completed HS		0.2	0.0	0.2		0.0	0.0	0.0		0.0	0.0	0.0	0.2	0.4	0.3
High School Program	441				300				236						
college preparatory		99.0	100.0	99.1		99.7	100.0	99.7		95.8	100.0	96.2	93.4	92.7	93.0
other		1.0	0.0	0.9		0.3	0.0	0.3		4.2	0.0	3.8	6.6	7.3	7.0

	WPI				Control School I				Control School II				National Norms		
	# of Respondents	Male	Female	Total	# of Respondents	Male	Female	Total	# of Respondents	Male	Female	Total	Male	Female	Total
Avg. Grade in High School	439				302				236						
A or A+		4.7	18.4	5.9		20.2	60.0	21.5		19.0	35.0	20.3	7.8	9.9	8.8
A-		20.0	39.5	21.6		20.9	20.0	20.9		18.5	45.0	20.8	11.1	15.6	13.3
B+		31.4	28.9	31.2		24.3	10.0	23.8		31.5	5.0	29.2	18.7	25.2	21.9
B		26.7	10.5	25.3		21.9	10.0	21.5		21.3	10.0	20.3	25.4	28.4	26.9
B-		10.5	2.6	9.8		8.6	0.0	8.3		6.0	5.0	5.9	15.0	10.2	12.6
C+		5.2	0.0	4.8		3.8	0.0	3.6		2.8	0.0	2.5	13.6	7.0	10.3
C		1.2	0.0	1.1		0.3	0.0	0.3		0.9	0.0	0.8	7.9	3.7	5.9
D		0.2	0.0	0.2		0.0	0.0	0.0		0.0	0.0	0.0	0.4	0.1	0.2
Highest Degree Planned Here	383				267				185						
none		1.1	0.0	1.0		0.4	0.0	0.4		1.8	0.0	1.6	4.8	6.5	5.6
associate (or equivalent)		0.6	0.0	0.5		0.0	0.0	0.0		0.0	0.0	0.0	2.6	3.6	3.1
bachelor's (B.A., B.S.)		72.8	76.5	73.1		69.3	100.0	70.0		36.7	62.5	38.9	76.1	75.8	75.9
master's (M.A., M.S.)		20.6	17.6	20.4		26.8	0.0	26.2		52.7	25.0	50.3	11.7	10.7	11.2
Ph.D. or Ed.D.		4.3	5.9	4.4		2.7	0.0	2.6		8.5	12.5	8.6	1.6	1.0	1.3
M.D., D.C., D.D.S. or D.V.M.		0.3	0.0	0.3		0.0	0.0	0.0		0.0	0.0	0.0	0.7	0.5	0.6
LL.B. or J.D. (law)		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.7	0.2	0.5
B.D. or M.Div. (divinity)		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.3	0.1	0.2
other		0.3	0.0	0.3		0.8	0.0	0.7		0.6	0.0	0.5	1.5	1.6	1.6
Highest Degree Planned Anywhere	383				267				185						
none		0.8	0.0	0.7		0.0	0.0	0.0		0.5	0.0	0.5	2.3	2.4	2.4
associate (or equivalent)		0.3	0.0	0.2		0.0	0.0	0.0		0.0	0.0	0.0	1.0	2.0	1.5
bachelor's (B.A., B.S.)		25.3	16.7	24.6		30.0	60.0	31.1		18.7	10.0	17.9	33.5	40.2	36.8
master's (M.A., M.S.)		43.9	43.3	43.9		48.3	30.0	47.6		47.0	30.0	45.4	30.9	35.3	33.1
Ph.D. or Ed.D.		26.8	36.7	27.6		16.0	10.0	15.8		27.3	60.0	30.3	13.0	9.3	11.2
M.D., D.C., D.D.S. or D.V.M.		1.8	3.3	2.0		3.4	0.0	3.3		5.1	0.0	4.6	9.5	5.4	7.5
LL.B. or J.D. (law)		0.3	0.0	0.2		0.4	0.0	0.4		1.0	0.0	0.9	7.0	3.1	5.1
B.D. or M.Div. (divinity)		0.3	0.0	0.2		0.4	0.0	0.4		0.0	0.0	0.0	1.0	0.2	0.6
other		0.5	0.0	0.5		1.5	0.0	1.5		0.5	0.0	0.5	1.8	2.0	1.9
This College is Student's	437				303				236						
first choice		80.5	71.1	79.6		81.9	90.0	82.2		78.7	70.0	78.0	76.2	76.8	76.5
second choice		16.3	28.9	17.4		15.4	10.0	15.2		17.1	30.0	18.2	18.8	19.0	18.9
less than second choice		3.3	0.0	3.0		2.7	0.0	2.6		4.2	0.0	3.8	5.0	4.2	4.6

	WPI				Control School I				Control School II				National Norms		
	# of Respondents	Male	Female	Total	# of Respondents	Male	Female	Total	# of Respondents	Male	Female	Total	Male	Female	Total
Reasons Very Important in Selecting This College															
relatives wanted me to	435	1.5	2.7	1.6	296	2.4	10.0	2.7	234	7.0	5.3	6.8	5.9	8.0	7.0
wanted live away from home	434	6.6	28.9	8.5	299	22.8	10.0	23.1	233	8.8	27.3	10.3	14.4	22.9	18.7
teacher advised me	431	5.6	13.5	6.3	295	4.9	0.0	4.7	229	4.3	0.0	3.9	6.0	5.9	6.0
good academic reputation	442	82.4	97.4	83.7	302	82.9	90.0	83.1	236	90.3	90.0	90.3	55.9	62.6	59.2
offered financial assist.	434	30.1	50.0	31.8	297	32.8	70.0	34.0	233	39.9	55.0	41.2	24.7	22.9	23.8
advice student/alumnus	434	11.1	13.9	11.3	296	15.4	20.0	15.5	234	14.4	0.0	13.2	20.1	20.0	20.1
special ed. programs	437	62.2	76.3	63.4	293	16.6	20.0	16.7	230	36.6	58.8	38.3	25.6	37.0	31.3
has low tuition	421	1.8	5.6	2.1	285	2.2	22.2	2.8	227	1.4	6.3	1.8	19.6	20.2	19.9
advice guidance counselor	429	12.5	5.4	11.9	295	10.2	0.0	9.8	229	14.1	6.3	13.5	9.9	8.8	9.3
wanted to live at home	417	2.1	0.0	1.9	284	0.0	0.0	0.0	226	11.9	0.0	11.1	6.8	7.5	7.2
could not get a job	419	0.0	0.0	0.0	282	0.7	0.0	0.7	226	1.4	6.3	1.8	2.1	2.1	2.1
Father's Occupation	431				290				2[illegible]2						
artist (incl performer)		0.8	0.0	0.7		0.4	0.0	0.3		0.5	0.0	0.5	0.8	0.8	0.8
businessman		30.8	23.7	30.2		29.5	11.1	29.0		30.0	10.5	28.4	29.5	28.0	28.8
clergy or rel. worker		1.0	0.0	0.9		0.0	0.0	0.0		1.5	0.0	1.4	1.6	1.5	1.6
educator (col. teacher)		0.8	2.6	0.9		1.8	0.0	1.7		1.0	0.0	0.9	1.5	1.4	1.5
doctor (M.S. or D.D.S.)		1.8	2.6	1.9		1.1	0.0	1.0		2.0	0.0	1.8	2.4	2.6	2.5
educator (secondary)		1.8	0.0	1.6		1.4	0.0	1.4		1.0	0.0	0.9	2.6	2.4	2.5
educator (elementary)		0.8	0.0	0.7		0.7	0.0	0.7		0.5	0.0	0.5	0.7	0.7	0.7
engineer		19.1	18.4	19.0		19.9	0.0	19.3		11.8	15.8	12.2	6.3	6.8	6.6
farmer or forester		0.5	2.6	0.7		1.8	11.1	2.1		1.0	0.0	0.9	4.0	4.6	4.3
health pro. (non-M.D.)		0.5	0.0	0.5		2.5	11.1	2.8		1.5	0.0	1.4	1.0	1.0	1.0
lawyer		2.3	0.0	2.1		0.4	0.0	0.3		0.0	0.0	0.0	1.5	1.9	1.7
military career		1.3	0.0	1.2		0.0	0.0	0.0		0.5	0.0	0.5	2.2	1.6	1.9
research scientist		0.8	2.6	0.9		1.4	0.0	1.4		1.5	0.0	1.4	0.6	0.7	0.6
skilled worker		17.0	21.1	17.4		17.4	44.4	18.3		17.7	26.3	18.5	17.0	15.6	16.3
semi- or unskilled worker		4.6	7.9	4.9		8.9	0.0	8.6		9.9	10.5	9.9	8.9	8.8	8.9
unemployed		1.3	5.3	1.6		1.4	0.0	1.4		0.5	5.3	0.9	1.9	2.2	2.0
other occupation		15.0	13.2	14.8		11.4	22.2	11.7		19.2	31.6	20.3	17.6	19.4	18.5
Total Income Last Year Independent of Parents	439				296				226						
none		4.5	7.9	4.8		7.7	40.0	8.8		14.5	42.1	16.8	8.3	20.7	14.4
less than $500		18.0	31.6	19.1		23.4	30.0	23.6		22.2	26.3	22.6	23.4	36.3	29.7
$500 - $999		26.2	31.6	26.7		30.1	20.0	29.7		21.7	15.8	21.2	27.3	22.7	25.1
$1,000 - $1,999		36.7	28.9	36.0		30.4	10.0	29.7		29.0	10.5	27.4	24.7	13.9	19.4
$2,000 - $2,999		11.5	0.0	10.5		7.0	0.0	6.8		10.6	0.0	9.7	9.6	3.7	6.7
$3,000 - $4,999		3.0	0.0	2.7		1.4	0.0	1.4		1.9	5.3	2.2	4.3	1.4	2.9
$5,000 - $9,999		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	1.8	0.9	1.4
$10,000 or more		0.2	0.0	0.2		0.0	0.0	0.0		0.0	0.0	0.0	0.7	0.4	0.5
Financially Indep. This Yr.	442				301				234						
yes		5.2	13.2	5.9		6.5	0.0	6.3		5.1	25.0	6.8	19.2	12.2	15.7
no		95.8	86.8	94.1		93.5	100.0	93.7		94.9	75.0	93.2	80.8	87.8	84.3

	WPI				Control School I				Control School II				National Norms		
	# of Respondents	Male	Female	Total	# of Respondents	Male	Female	Total	# of Respondents	Male	Female	Total	Male	Female	Total
Financially Indep. Last Yr.	441				302				232						
yes		4.2	2.6	4.1		2.4	0.0	2.3		5.2	20.0	6.5	9.9	9.0	9.5
no		95.8	97.4	95.9		97.6	100.0	97.7		94.8	80.0	93.5	90.1	91.0	90.5
Estimated Parental Income	431				281				211						
less than $3,000		0.8	2.9	0.9		1.8	10.0	2.1		0.5	10.5	1.4	2.8	3.7	3.2
$3,000 - $3,999		1.3	2.9	1.4		0.7	0.0	0.7		0.5	15.8	1.9	2.3	3.1	2.7
$4,000 - $5,999		1.5	0.0	1.4		3.0	0.0	2.8		3.1	10.5	3.8	4.1	5.4	4.8
$6,000 - $7,999		2.8	2.9	2.8		2.6	0.0	2.5		3.1	10.5	3.8	5.3	5.8	5.5
$8,000 - $9,999		5.3	11.8	5.8		5.9	0.0	5.7		7.8	5.3	7.6	7.5	7.6	7.5
$10,000 - $12,499		14.1	26.5	15.1		12.2	10.0	12.1		14.1	0.0	12.8	14.7	14.4	14.6
$12,500 - $14,999		16.4	17.6	16.5		16.6	30.0	17.1		18.2	15.8	18.0	13.3	12.0	12.7
$15,000 - $19,999		19.4	14.7	19.0		20.3	10.0	19.9		21.4	10.5	20.4	17.7	15.6	16.7
$20,000 - $24,999		14.6	11.8	14.4		17.0	30.0	17.4		14.1	15.8	14.2	12.6	11.9	12.2
$25,000 - $29,999		6.3	0.0	5.8		5.5	0.0	5.3		8.9	5.3	8.5	6.4	6.2	6.3
$30,000 - $34,999		6.3	2.9	6.0		5.5	0.0	5.3		2.1	0.0	1.9	4.3	4.6	4.4
$35,000 - $39,999		3.5	2.9	3.5		3.5	0.0	3.2		2.1	0.0	1.9	2.4	2.9	2.7
$40,000 - $49,999		3.3	2.9	3.2		3.0	0.0	2.8		1.6	0.0	1.4	2.4	2.4	2.4
$50,000 or more		4.5	0.0	4.2		2.0	10.0	2.8		2.6	0.0	2.4	4.2	4.3	4.3
Father's Education	439				298				229						
grammar school or less		3.0	5.3	3.2		1.4	0.0	1.3		8.1	10.0	8.3	6.5	7.0	6.8
some high school		7.7	7.9	7.7		8.3	0.0	8.1		11.0	15.0	11.4	11.8	11.8	11.8
high school graduate		24.4	21.1	24.1		27.7	33.3	27.9		25.8	25.0	25.8	27.7	25.4	26.5
post-secondary, not col.		5.7	5.3	5.7		3.5	0.0	3.4		8.6	10.0	8.7	4.5	5.0	4.7
some college		13.2	10.5	13.0		14.5	22.2	14.8		12.4	20.0	13.1	14.0	14.5	14.3
college degree		24.7	28.9	25.1		29.1	22.2	28.9		18.2	10.0	17.5	18.7	18.8	18.7
some graduate school		3.7	7.9	4.1		3.5	11.1	3.7		2.4	0.0	2.2	2.7	2.6	2.7
graduate degree		17.5	13.2	17.1		12.1	11.1	12.1		13.4	10.0	13.1	14.1	14.8	14.4
Mother's Education	442				297				234						
grammar school or less		2.5	2.6	2.5		3.5	0.0	3.4		8.4	5.0	8.1	4.2	4.3	4.3
some high school		6.9	7.9	7.0		6.3	0.0	6.1		13.1	15.0	13.2	10.2	10.3	10.3
high school graduate		36.6	50.0	37.8		36.9	30.0	36.7		46.3	40.0	45.7	41.7	37.1	39.4
post-secondary, not col.		12.1	5.3	11.5		10.8	10.0	10.8		8.4	15.0	9.0	6.7	8.7	7.7
some college		13.9	15.8	14.0		13.9	40.0	14.8		8.9	15.0	9.4	15.1	15.6	15.3
college degree		22.5	18.4	22.2		22.3	20.0	22.2		9.8	10.0	9.8	14.9	16.2	15.6
some graduate school		2.2	0.0	2.0		1.7	0.0	1.7		0.9	0.0	0.9	2.3	2.5	2.4
graduate degree		3.2	0.0	2.9		4.5	0.0	4.4		4.2	0.0	3.8	4.8	5.3	5.0
Probable Career Occupation	438				296				229						
artist (incl performer)		0.2	0.0	0.2		0.0	0.0	0.0		1.0	0.0	0.9	4.9	8.4	6.7
businessman		4.7	0.0	4.3		10.8	10.0	10.8		2.9	5.0	3.1	18.5	6.8	12.7
clergy or rel. worker		0.2	0.0	0.2		0.0	0.0	0.0		0.5	0.0	0.4	2.2	0.7	1.4
educator (col. teacher)		0.2	2.6	0.5		0.0	0.0	0.0		0.0	0.0	0.0	0.9	1.0	0.9
doctor (M.D. or D.D.S.)		1.5	2.6	1.6		3.5	0.0	3.4		3.3	0.0	3.1	7.4	3.6	5.5
educator (secondary)		0.5	0.0	0.5		0.3	0.0	0.3		0.0	0.0	0.0	4.8	7.5	6.1
educator (elementary)		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.9	9.3	5.1

(continued on next page)

	WPI				Control School I				Control School II				National Norms		
	# of Respondents	Male	Female	Total	# of Respondents	Male	Female	Total	# of Respondents	Male	Female	Total	Male	Female	Total
Probable Career Occupation (continued)															
engineer		54.7	52.6	54.6		63.3	80.0	63.9		64.1	55.0	63.3	8.2	0.8	4.5
farmer or forester		0.7	0.0	0.7		0.0	0.0	0.0		1.4	0.0	1.3	3.1	0.9	2.0
health pro. (non-M.D.)		0.5	0.0	0.5		0.0	0.0	0.0		0.0	0.0	0.0	4.7	11.9	8.3
lawyer		0.0	0.0	0.0		0.3	0.0	0.3		0.0	0.0	0.0	6.3	2.8	4.6
nurse		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.1	8.1	4.1
research scientist		7.5	7.9	7.5		5.6	0.0	5.4		9.1	5.0	8.7	3.1	1.8	2.4
other occupation		21.0	21.1	21.0		8.4	10.0	8.4		12.0	30.0	13.5	21.7	22.6	22.1
undecided		8.0	13.2	8.4		7.7	0.0	7.4		5.7	5.0	5.7	13.0	13.8	13.4
Probable Major Field of Study	418				296				202						
agriculture (incl. forestry)		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	2.3	0.5	1.4
biological sciences		2.6	2.6	2.6		1.4	0.0	1.4		2.2	6.3	2.5	8.3	6.3	7.3
business		2.1	0.0	1.9		12.2	10.0	12.2		0.5	0.0	0.5	21.0	9.0	14.9
education		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	6.7	21.7	14.3
engineering		63.7	52.6	62.7		70.3	80.0	70.6		74.7	56.3	73.3	12.1	0.9	6.4
English		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	1.2	2.5	1.8
health professions		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	1.5	11.0	6.3
history, pol. science		0.0	2.6	0.2		0.0	0.0	0.0		0.0	0.0	0.0	6.6	3.6	5.1
humanities (other)		0.3	0.0	0.2		0.3	0.0	0.3		0.0	0.0	0.0	2.9	3.9	3.4
fine arts		1.8	0.0	1.7		0.3	0.0	0.3		0.5	0.0	0.5	6.3	8.6	7.5
mathematics and statistics		3.2	13.2	4.1		4.5	10.0	4.7		4.3	6.3	4.5	2.3	1.8	2.1
physical sciences		12.4	10.5	12.2		6.3	0.0	6.1		10.8	6.3	10.4	5.0	1.3	3.1
social sciences		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	5.5	11.4	8.5
other technical fields		11.8	15.8	12.2		3.1	0.0	3.0		4.3	18.8	5.4	5.8	4.3	5.1
other nontech. fields		0.8	0.0	0.7		0.3	0.0	0.3		0.0	0.0	0.0	7.5	7.7	7.6
undecided		1.3	2.6	1.4		1.0	0.0	1.0		2.7	6.3	3.0	4.9	5.6	5.2
Reasons Very Important for Long-Term Career Choice															
job openings available	437	41.9	52.6	42.8	296	51.7	70.0	52.4	230	40.0	50.0	40.9	41.7	50.1	45.9
rapid advancement	435	35.3	26.3	34.5	296	49.6	20.0	39.9	227	33.3	40.0	33.9	39.2	27.4	33.3
high anticipated earnings	436	39.7	34.2	39.2	303	51.2	40.0	50.8	226	49.5	35.0	48.2	46.4	31.0	38.7
respected occupation	432	20.1	23.7	20.4	295	24.6	20.0	24.4	227	38.6	25.0	37.4	34.7	28.4	31.5
independence	436	40.7	28.9	39.7	292	34.4	20.0	33.9	225	38.5	50.0	39.6	43.2	38.4	40.8
chance for steady progress	434	50.3	52.6	50.5	296	47.2	20.0	46.3	227	55.6	50.0	55.1	52.2	44.9	48.6
contribution to society	434	43.2	55.3	44.2	294	37.0	50.0	37.4	230	49.0	55.0	49.6	45.4	59.0	52.2
avoid pressure	432	9.1	10.5	9.3	289	10.8	0.0	10.4	229	15.8	15.0	15.7	14.8	17.0	15.9
work with ideas	436	65.6	65.8	65.6	297	47.7	60.0	48.1	228	54.3	70.0	55.7	43.4	50.4	46.9
be helpful to others	436	42.3	50.0	43.0	292	38.3	50.0	38.7	225	43.5	61.1	44.9	54.0	76.1	65.1
work with people	434	32.6	63.2	35.3	293	33.9	40.0	34.1	226	29.5	31.6	29.6	52.4	75.5	63.9
intrinsic interest in field	432	72.8	78.9	73.4	297	65.0	60.0	75.7	226	75.5	88.9	76.5	63.4	74.7	69.0

	WPI				Control School I				Control School II				National Norms		
	# of Respondents	Male	Female	Total	# of Respondents	Male	Female	Total	# of Respondents	Male	Female	Total	Male	Female	Total
Residence Planned															
During Fall Term	441				300				232						
with parents or relatives		11.9	10.5	11.8		1.7	0.0	1.7		31.9	26.3	31.5	23.3	22.4	22.9
other private home or apt.		0.7	0.0	0.7		0.0	0.0	0.0		0.0	0.0	0.0	3.2	2.5	2.8
college dormitory		86.8	89.5	87.1		97.6	100.0	97.7		67.1	73.7	67.7	70.1	74.1	72.1
fraternity or sorority		0.2	0.0	0.2		0.7	0.0	0.7		0.9	0.0	0.9	1.8	0.2	1.0
other campus housing		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	1.0	0.4	0.7
other		0.2	0.0	0.2		0.0	0.0	0.0		0.0	0.0	0.0	0.6	0.3	0.4
Residence Preferred															
During Fall Term	419				282				213						
with parents or relatives		8.1	2.6	7.6		3.3	0.0	3.2		32.5	10.5	30.5	16.7	13.4	15.1
other private home or apt.		17.1	7.9	16.2		12.9	10.0	12.8		12.9	31.6	14.6	25.3	19.7	22.5
college dormitory		57.0	78.9	58.9		58.0	90.0	68.8		34.5	47.4	35.7	45.5	59.1	52.3
fraternity or sorority		7.3	2.6	6.9		6.6	0.0	6.4		16.0	5.3	15.0	6.3	3.1	4.7
other campus housing		8.9	5.3	8.6		7.0	0.0	6.7		2.6	5.3	2.8	3.7	3.2	3.4
other		1.6	2.6	1.7		2.2	0.0	2.1		1.5	0.0	1.4	2.6	1.5	2.1
Current Religious Preference	439				293				232						
Baptist		2.7	2.6	2.7		3.2	11.1	3.4		2.8	20.0	4.3	14.9	15.7	15.3
Congregational (U.C.C.)		7.7	10.5	8.0		3.2	0.0	3.1		0.9	0.0	0.9	2.0	2.0	2.0
Eastern Orthodox		0.5	0.0	0.5		1.1	0.0	1.0		0.9	0.0	0.9	0.6	0.5	0.5
Episcopal		6.0	7.9	6.2		2.8	11.1	3.1		2.4	0.0	2.2	3.2	3.8	3.5
Jewish		4.7	2.6	4.6		2.1	0.0	2.0		4.7	5.0	4.7	3.3	2.9	3.1
Latter Day Saints (Mormon)		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.2	0.2	0.2
Lutheran		3.0	2.6	3.0		3.9	11.1	4.1		3.3	0.0	3.0	5.4	5.3	5.3
Methodist		5.2	2.6	5.0		7.0	0.0	6.8		1.4	10.0	2.2	11.6	12.0	11.8
Muslim		0.0	0.0	0.0		0.0	0.0	0.0		0.9	0.0	0.9	0.2	0.1	0.2
Presbyterian		2.5	0.0	2.3		9.9	0.0	9.6		7.1	0.0	6.5	5.9	6.2	6.0
Quaker (Society of Friends)		0.5	0.0	0.5		0.4	0.0	0.3		0.0	0.0	0.0	0.2	0.2	0.2
Roman Catholic		41.6	44.7	41.9		45.8	22.2	45.1		50.0	45.0	49.6	31.0	30.1	30.5
Seventh Day Adventist		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.6	0.7	0.6
Unitarian-Universalist		0.7	0.0	0.7		1.1	11.1	1.4		0.0	0.0	0.0	0.4	0.5	0.5
other Protestant		2.2	0.0	2.1		3.5	11.1	3.8		5.2	0.0	4.7	6.4	6.6	6.5
other religion		2.5	2.6	2.5		1.4	11.1	1.7		3.3	5.0	3.4	3.8	4.0	3.9
none		20.0	23.7	20.3		14.8	11.1	14.7		17.0	15.0	16.8	10.6	9.1	9.9
[illegible]her's Religious Preference	432				291				226						
Baptist		1.8	2.6	1.9		4.3	0.0	4.1		2.4	21.1	4.0	15.4	15.7	15.6
Congregational (U.C.C.)		10.2	13.2	10.4		2.1	0.0	2.1		1.4	0.0	1.3	2.2	2.2	2.2
Eastern Orthodox		1.0	0.0	0.9		1.1	11.1	1.4		0.5	0.0	0.4	0.7	0.5	0.6
Episcopal		8.9	5.3	8.6		4.3	11.1	4.5		2.4	0.0	2.2	3.6	4.2	3.9
Jewish		5.3	2.6	5.1		2.1	0.0	2.1		7.2	5.3	7.1	4.0	3.5	3.7
Latter Day Saints (Mormon)		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.2	0.1	0.2
Methodist		5.3	5.3	5.3		8.5	11.1	8.6		2.4	15.8	3.5	12.8	13.0	12.9
Muslim		0.5	0.0	0.5		0.0	0.0	0.0		0.5	0.0	0.4	0.2	0.1	0.2
Presbyterian		3.3	0.0	3.0		11.7	0.0	11.3		7.2	0.0	6.6	7.0	7.0	7.0
Quaker (Society of Friends)		0.3	0.0	0.2		0.4	0.0	0.3		0.0	0.0	0.0	0.2	0.2	0.2

(continued on next page)

	WPI				Control School I				Control School II				National Norms		
	# of Respondents	Male	Female	Total	# of Respondents	Male	Female	Total	# of Respondents	Male	Female	Total	Male	Female	Total
Father's Religious Preference (continued)															
Roman Catholic		45.2	50.0	45.6		46.1	22.2	45.4		56.5	42.1	55.3	31.5	30.2	30.8
Seventh Day Adventist		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.5	0.5	0.5
Unitarian-Universalist		1.3	0.0	1.2		1.1	0.0	1.0		0.0	0.0	0.0	0.4	0.6	0.5
other Protestant		3.8	2.6	3.7		5.7	11.1	5.8		5.8	0.0	5.3	6.3	6.2	6.3
other religion		1.8	0.0	1.6		0.7	0.0	0.7		1.9	5.3	2.2	2.6	2.5	2.5
none		7.9	13.2	8.3		8.2	22.2	8.6		6.8	10.5	7.1	6.5	7.7	7.1
Mother's Religious Preference	441				294				228						
Baptist		3.2	2.6	3.1		3.5	0.0	3.4		3.8	15.0	4.8	15.9	16.6	16.3
Congregational (U.C.C.)		9.9	13.2	10.2		3.5	0.0	3.4		1.9	0.0	1.8	2.3	2.3	2.3
Eastern Orthodox		0.7	0.0	0.7		1.1	0.0	1.0		1.0	0.0	0.9	0.6	0.5	0.6
Episcopal		9.2	5.3	8.8		3.9	11.1	4.1		4.3	5.0	4.4	3.9	4.6	4.3
Jewish		5.2	2.6	5.0		2.1	0.0	2.0		5.8	5.0	5.7	3.8	3.3	3.6
Latter Day Saints (Mormon)		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.2	0.1	0.2
Lutheran		3.7	7.9	4.1		3.5	22.2	4.1		6.3	0.0	5.7	6.0	5.9	5.9
Methodist		5.2	2.6	5.0		9.8	11.1	9.9		2.4	15.0	3.5	13.2	13.5	13.4
Muslim		0.2	0.0	0.2		0.4	0.0	0.3		2.4	15.0	3.5	13.2	13.5	13.4
Presbyterian		4.2	0.0	3.9		11.9	11.1	11.9		7.2	5.0	7.0	7.0	7.3	7.2
Quaker (Society of Friends)		0.2	0.0	0.2		0.4	0.0	0.3		0.0	0.0	0.0	0.2	0.2	0.2
Roman Catholic		46.7	55.3	47.4		51.6	22.2	50.7		57.2	45.0	56.1	33.0	31.3	32.1
Seventh Day Adventist		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.6	0.7	0.6
Unitarian-Universalist		1.7	0.0	1.6		0.7	11.1	1.0		0.0	0.0	0.0	0.4	0.6	0.5
other Protestant		3.7	0.0	3.4		4.6	11.1	4.8		4.3	0.0	3.9	6.6	6.5	6.5
other religion		2.0	0.0	1.8		0.7	0.0	0.7		2.4	5.0	2.6	2.8	2.8	2.8
none		4.0	10.5	4.5		2.5	0.0	2.4		2.9	5.0	3.1	3.3	3.5	3.4
Concern about Financing Col.	443				303				235						
no concern		24.9	2.6	23.0		28.0	10.0	27.4		27.4	15.0	26.4	40.7	32.0	36.4
some concern		61.5	68.4	62.1		53.2	70.0	53.8		53.0	70.0	54.5	44.4	49.9	47.1
major concern		13.6	28.9	14.9		18.8	20.0	18.8		19.5	15.0	19.1	14.9	18.1	16.5
Support from Part-Time Employment	390				252				190						
none		20.8	20.0	20.8		25.5	44.4	26.2		25.3	37.5	26.3	31.4	32.7	32.0
$1 - $499		35.8	42.9	36.4		27.6	44.4	28.2		41.4	56.3	42.6	35.4	48.8	42.1
$500 - $999		29.0	28.6	29.0		33.3	11.1	32.5		23.0	6.3	21.6	22.5	15.0	18.7
$1,000 - $1,999		12.1	8.6	11.8		10.7	0.0	10.3		9.2	0.0	8.4	9.0	3.1	6.1
$2,000 - $4,000		1.7	0.0	1.5		2.9	0.0	2.8		0.6	0.0	0.5	1.5	0.4	0.9
over $4,000		0.6	0.0	0.5		0.0	0.0	0.0		0.6	0.0	0.5	0.3	0.1	0.2

	WPI				Control School I				Control School II				National Norms		
	# of Respondents	Male	Female	Total	# of Respondents	Male	Female	Total	# of Respondents	Male	Female	Total	Male	Female	Total
Support from Full-Time Employment	316				213				159						
none		92.1	88.5	91.8		94.6	100.0	94.8		93.2	100.0	93.7	89.4	93.4	91.4
$1 - $499		2.8	7.7	3.2		0.5	0.0	0.5		2.7	0.0	2.5	4.4	3.9	4.1
$500 - $999		3.1	3.8	3.2		1.0	0.0	0.9		2.7	0.0	2.5	3.3	1.7	2.5
$1,000 - $1,999		1.4	0.0	1.3		2.9	0.0	2.8		1.4	0.0	1.3	2.0	0.7	1.4
$2,000 - $4,000		0.7	0.0	0.6		1.0	0.0	0.9		0.0	0.0	0.0	0.5	0.2	0.4
over $4,000		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.4	0.1	0.3
Support from Savings	375				245				183						
none		34.7	28.1	34.1		37.3	44.4	37.6		54.5	50.0	54.1	44.5	44.3	44.4
$1 - $499		37.9	37.5	37.9		35.2	55.6	35.9		24.6	37.5	25.7	33.8	39.9	36.8
$500 - $999		15.2	9.4	14.7		14.4	0.0	13.9		10.2	6.3	9.8	12.1	9.8	11.0
$1,000 - $1,999		10.5	25.0	11.7		8.9	0.0	8.6		6.6	6.3	6.6	7.0	4.3	5.6
$2,000 - $4,000		1.5	0.0	1.3		3.8	0.0	3.7		3.6	0.0	3.3	2.1	1.3	1.7
over $4,000		0.3	0.0	0.3		0.4	0.0	0.4		0.6	0.0	0.5	0.5	0.4	0.4
Support from Spouse	330				219				167						
none		98.3	100.0	98.5		100.0	100.0	100.0		99.4	100.0	99.4	98.8	98.8	98.8
$1 - $499		0.3	0.0	0.3		0.0	0.0	0.0		0.0	0.0	0.0	0.6	0.7	0.6
$500 - $999		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.2	0.3	0.2
$1,000 - $1,999		0.7	0.0	0.6		0.0	0.0	0.0		0.6	0.0	0.6	0.2	0.1	0.1
$2,000 - $4,000		0.7	0.0	0.6		0.0	0.0	0.0		0.0	0.0	0.0	0.1	0.1	0.1
over $4,000		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.1	0.1	0.1
Support from Parental or Family Aid	434				287				226						
none		10.9	13.2	11.1		9.4	10.0	9.4		6.7	5.6	6.6	20.3	12.8	16.5
$1 - $499		13.1	15.8	13.4		14.1	20.0	14.3		13.0	44.4	15.5	22.2	21.9	22.1
$500 - $999		8.6	26.3	10.1		10.8	20.0	11.1		13.9	16.7	14.2	14.3	14.1	14.2
$1,000 - $1,999		15.7	18.4	15.9		20.6	10.0	20.2		24.0	5.6	22.6	18.5	19.4	19.0
$2,000 - $4,000		28.3	15.8	27.2		30.3	30.0	30.3		34.1	27.8	33.6	16.9	20.7	18.8
over $4,000		23.5	10.5	22.4		14.8	10.0	14.6		8.2	0.0	7.5	7.9	11.1	9.5
Support from Parent's G.I. Benefits	331				215				164						
none		97.7	100.0	97.9		98.1	100.0	98.1		99.4	100.0	99.4	98.0	98.1	98.1
$1 - $499		1.0	0.0	0.9		1.0	0.0	0.9		0.6	0.0	0.6	1.0	0.9	1.0
$500 - $999		0.7	0.0	0.6		1.0	0.0	0.9		0.0	0.0	0.0	0.4	0.4	0.4
$1,000 - $1,999		0.3	0.0	0.3		0.0	0.0	0.0		0.0	0.0	0.0	0.3	0.3	0.3
$2,000 - $4,000		0.3	0.0	0.3		0.0	0.0	0.0		0.0	0.0	0.0	0.2	0.2	0.2
over $4,000		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.1	0.0	0.1

	WPI				Control School I				Control School II				National Norms		
	# of Respondents	Male	Female	Total	# of Respondents	Male	Female	Total	# of Respondents	Male	Female	Total	Male	Female	Total
Support from Soc. Sec. Dependent's Benefits	332				217				166						
none		92.7	90.0	92.5		92.8	100.0	93.1		96.1	83.3	95.2	92.7	91.6	92.2
$1 - $499		2.3	3.3	2.4		2.9	0.0	2.8		1.9	8.3	2.4	3.7	4.6	4.1
$500 - $999		2.0	3.3	2.1		1.9	0.0	1.8		0.6	8.3	1.2	1.6	1.6	1.6
$1,000 - $1,999		2.3	3.3	2.4		1.9	0.0	1.8		1.3	0.0	1.2	1.5	1.5	1.5
$2,000 - $4,000		0.0	0.0	0.0		0.5	0.0	0.5		0.0	0.0	0.0	0.4	0.5	0.5
over $4,000		0.7	0.0	0.6		0.0	0.0	0.0		0.0	0.0	0.0	0.1	0.1	0.1
Support from Personal G.I. Benefits	332				21[illegible]				167						
none		99.7	100.0	99.7		100.0	100.0	100.0		100.0	100.0	100.0	98.5	99.7	99.1
$1 - $499		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.3	0.2	0.2
$500 - $999		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.3	0.1	0.2
$1,000 - $1,999		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.4	0.1	0.2
$2,000 - $4,000		0.3	0.0	0.3		0.0	0.0	0.0		0.0	0.0	0.0	0.3	0.0	0.7
over $4,000		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.2	0.0	0.1
Support from Local or Private Scholarship or Grant	360				246				184						
none		54.0	41.2	52.8		43.6	20.0	42.7		45.2	27.8	43.5	79.1	72.7	75.9
$1 - $499		14.7	0.0	13.3		15.3	30.0	15.9		13.3	11.1	13.0	9.9	14.9	12.4
$500 - $999		8.9	17.6	9.7		16.5	30.0	17.1		14.5	33.3	16.3	5.1	6.7	5.9
$1,000 - $1,999		16.0	17.6	16.1		19.9	20.0	19.9		21.1	22.2	21.2	4.0	4.4	4.2
$2,000 - $4,000		5.8	23.5	7.5		3.8	0.0	3.7		6.0	5.6	6.0	1.3	1.3	1.3
over $4,000		0.6	0.0	0.6		0.8	0.0	0.8		0.0	0.0	0.0	0.6	0.1	0.4
Support from State Scholarship or Grant	329				264				184						
none		87.7	86.2	87.5		28.0	20.0	27.7		59.5	31.3	57.1	77.1	76.3	76.7
$1 - $499		0.7	3.4	0.9		28.3	10.0	27.7		13.1	6.3	12.5	8.5	11.4	9.9
$500 - $999		9.7	3.4	9.1		21.7	10.0	21.2		6.0	6.3	6.0	7.0	7.0	7.0
$1,000 - $1,999		2.0	6.9	2.4		21.3	60.0	22.7		21.4	56.3	24.5	4.7	4.4	4.6
$2,000 - $4,000		0.0	0.0	0.0		0.8	0.0	0.8		0.0	0.0	0.0	1.0	0.8	0.9
over $4,000		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	1.7	0.1	0.9
Support from Federal Guaranteed Student Loan	323				227				179						
none		79.4	66.7	78.3		74.1	57.1	73.6		57.0	64.3	57.5	87.0	87.9	87.4
$1 - $499		1.4	3.7	1.5		1.4	0.0	1.3		3.0	7.1	3.4	2.9	2.7	2.8
$500 - $999		4.4	7.4	4.6		1.4	0.0	1.3		13.3	0.0	12.3	3.3	3.1	3.2
$1,000 - $1,999		11.8	22.2	12.7		20.9	42.9	21.6		19.4	28.6	20.1	5.6	5.4	5.5
$2,000 - $4,000		2.7	0.0	2.5		2.3	0.0	2.2		7.3	0.0	6.7	1.0	0.8	0.9
over $4,000		0.3	0.0	0.3		0.0	0.0	0.0		0.0	0.0	0.0	0.2	0.1	0.1

	WPI				Control School I				Control School II				National Norms		
	# of Respondents	Male	Female	Total	# of Respondents	Male	Female	Total	# of Respondents	Male	Female	Total	Male	Female	Total
Support from National Direct Student Loan	358				210				157						
none		64.3	54.5	63.4		91.2	66.7	90.5		90.8	40.0	86.0	88.7	86.3	87.5
$1 - $499		4.0	6.1	4.2		0.5	16.7	1.0		0.7	20.0	2.5	3.9	5.0	4.4
$500 - $999		10.5	24.2	11.7		2.5	0.0	2.4		2.1	20.0	3.8	4.4	5.6	5.0
$1,000 - $1,999		20.3	15.2	19.8		5.4	16.7	5.7		6.3	20.0	7.6	2.7	2.9	2.8
$2,000 - $4,000		0.9	0.0	0.8		0.5	0.0	0.5		0.0	0.0	0.0	0.2	0.2	0.2
over $4,000		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.1	0.0	0.1
Support from Other Loan	316				214				155						
none		84.8	85.2	84.8		81.2	85.7	81.3		91.0	100.0	91.6	92.1	91.4	91.7
$1 - $499		1.4	0.0	1.3		1.0	0.0	0.8		1.4	0.0	1.3	2.3	2.3	2.3
$500 - $999		3.1	3.7	3.2		1.9	0.0	1.9		0.0	0.0	0.0	2.2	2.4	2.3
$1,000 - $1,999		7.3	3.7	7.0		14.5	14.3	14.5		4.8	0.0	4.5	2.6	3.1	2.9
$2,000 - $4,000		3.1	7.4	3.5		1.4	0.0	1.4		1.4	0.0	1.3	0.6	0.7	0.6
Support from Basic Ed. Opportunity Grant	355				237				202						
none		68.3	70.0	68.5		74.6	88.9	75.1		61.4	44.4	59.9	69.3	72.8	71.0
$1 - $499		4.6	10.0	5.1		11.8	11.1	11.8		6.0	5.6	5.9	11.1	11.3	11.3
$500 - $999		10.5	10.0	10.4		8.8	0.0	8.4		11.4	27.8	12.9	10.1	10.1	10.1
$1,000 - $1,999		12.6	3.3	11.8		4.4	0.0	4.2		17.9	16.7	17.8	5.7	4.8	5.3
$2,000 - $4,000		4.0	6.7	4.2		0.0	0.0	0.0		3.3	5.6	3.5	1.5	0.8	1.2
over $4,000		0.0	0.0	0.0		0.4	0.0	0.4		0.0	0.0	0.0	2.3	0.1	1.2
Support from Supplemental Ed. Opportunity Grant	324				215				169						
none		98.0	92.6	97.5		94.2	77.8	93.5		89.1	69.2	87.6	92.5	93.0	92.8
$1 - $499		0.3	0.0	0.3		2.9	0.0	2.8		3.8	0.0	3.6	3.6	3.7	3.6
$500 - $999		0.3	7.4	0.9		1.0	11.1	1.4		3.2	7.7	3.6	2.5	2.3	2.4
$1,000 - $1,999		1.0	0.0	0.9		1.9	11.1	2.3		3.2	23.1	4.7	1.0	0.9	0.9
$2,000 - $4,000		0.3	0.0	0.3		0.0	0.0	0.0		0.6	0.0	0.6	0.2	0.1	0.2
over $4,000		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.2	0.0	0.1
Support from College Work-Study Grant	329				219				179						
none		94.7	96.4	94.8		92.9	100.0	93.2		70.6	68.8	70.4	83.1	80.7	81.9
$1 - $499		1.0	3.6	1.2		2.9	0.0	2.7		15.3	12.5	15.1	10.2	11.4	10.8
$500 - $999		2.0	0.0	1.8		2.9	0.0	2.7		13.5	12.5	13.4	5.5	6.8	6.2
$1,000 - $1,999		1.7	0.0	1.5		1.4	0.0	1.4		0.6	6.3	1.1	0.8	0.9	0.8
$2,000 - $4,000		0.7	0.0	0.6		0.0	0.0	0.0		0.0	0.0	0.0	0.2	0.2	0.2
over $4,000		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.1	0.0	0.1

	WPI				Control School I				Control School II				National Norms		
	# of Respondents	Male	Female	Total	# of Respondents	Male	Female	Total	# of Respondents	Male	Female	Total	Male	Female	Total
Other Sources of Support	323				213				165						
none		95.2	96.6	95.4		91.7	100.0	92.0		94.8	75.0	93.3	89.1	95.4	92.2
$1 - $499		1.0	0.0	0.9		3.4	0.0	3.3		2.0	16.7	3.0	2.5	2.2	2.4
$500 - $999		1.4	0.0	1.2		0.0	0.0	0.0		0.0	8.3	0.6	1.0	0.8	0.9
$1,000 - $1,999		1.0	3.4	1.2		2.0	0.0	1.9		2.0	0.0	1.8	0.7	0.8	0.7
$2,000 - $4,000		1.0	0.0	0.9		2.0	0.0	1.9		0.7	0.0	0.6	0.6	0.5	0.5
over $4,000		0.3	0.0	0.3		1.0	0.0	0.9		0.7	0.0	0.6	6.0	0.3	3.2
Veteran	443				303				236						
no		99.0	97.4	98.9		99.7	100.0	99.7		96.3	90.0	95.3	98.2	99.3	98.7
yes		1.0	2.6	1.1		0.3	0.0	0.3		3.7	10.0	4.2	1.8	0.7	1.3
Objectives Considered to be Essential or Very Important															
achieve in a performing art	434	4.0	7.9	4.4	296	5.9	0.0	5.7	232	3.8	5.0	3.9	10.9	15.4	13.1
be an authority in my field	434	66.9	78.9	68.0	297	57.1	40.0	56.6	231	69.2	65.0	68.8	67.7	59.6	63.7
obtain colleagues' recog.	437	41.4	39.5	41.2	295	37.9	40.0	38.0	231	54.0	35.0	52.4	44.5	35.7	40.1
influence polit. structure	435	9.0	5.4	8.7	294	9.9	0.0	9.5	229	12.9	30.0	14.4	16.9	10.6	13.8
influence social values	435	18.6	24.3	19.1	295	13.7	40.0	14.6	230	20.0	25.0	20.4	27.5	31.9	29.7
raise a family	436	49.0	50.0	49.1	296	53.8	40.0	53.4	231	53.6	40.0	52.4	55.4	56.2	55.8
have admin. responsibility	432	21.6	13.2	20.8	294	23.2	0.0	22.4	230	23.3	15.0	22.6	29.9	20.1	25.0
very well off financially	436	45.0	36.8	44.3	294	56.3	20.0	55.1	231	53.6	15.0	50.2	53.1	34.1	43.6
help others in difficulty	434	50.3	57.9	50.9	295	47.4	40.0	47.1	230	48.1	55.0	48.7	56.7	73.2	64.9
theoretical contribution to science	437	34.8	42.1	35.5	295	23.9	10.0	23.4	229	43.1	40.0	42.8	15.8	10.1	13.0
writing original works	436	5.8	10.5	6.2	296	5.2	10.0	5.4	230	11.0	10.0	10.9	11.7	15.4	13.5
creating artistic work	434	7.3	21.1	8.5	295	4.2	20.0	4.7	230	8.6	15.0	9.1	10.3	18.8	14.6
success in my own business	436	30.9	23.7	30.3	295	22.1	10.0	21.7	230	31.0	15.0	29.6	45.1	26.5	35.8
involved in environ. cleanup	436	37.2	50.0	38.3	295	30.9	60.0	31.9	226	37.7	42.1	38.1	27.2	24.4	25.8
develop philosophy of life	437	62.4	86.8	64.5	293	55.5	50.0	55.3	230	60.5	70.0	61.3	61.4	69.4	65.4
partic. in community action	435	20.9	44.7	23.0	293	15.5	10.0	15.4	228	18.8	35.0	20.2	27.5	33.9	30.7
keep up with pol. affairs	436	40.7	39.5	40.6	293	35.3	10.0	34.5	231	35.5	45.0	36.4	42.6	37.7	40.1
Agree Strongly or Somewhat															
govt not controlling pollu.	441	82.4	86.8	82.8	295	81.1	100.0	81.7	233	88.3	95.0	88.8	81.2	84.8	83.0
govt not protect. consumer	440	71.9	73.7	72.0	295	75.1	80.0	75.3	231	78.3	84.2	78.8	72.8	77.9	75.3
govt should help priv col	438	78.8	78.4	78.8	293	85.9	90.0	86.0	226	85.9	75.0	85.0	69.9	68.8	69.3
more grants, fewer loans	436	72.4	86.5	73.6	294	81.3	100.0	82.0	230	83.8	95.0	84.8	79.7	86.2	82.9
too many rights for criminals	439	50.9	42.1	50.1	292	57.8	60.0	57.9	229	71.8	55.0	70.3	56.3	43.5	50.0
not obey laws vs own views	434	31.0	35.1	31.3	286	34.8	20.0	34.3	228	39.4	25.0	38.2	34.4	32.3	33.4
people should be pd equally	440	17.2	13.2	16.8	290	21.4	0.0	20.7	230	23.3	20.0	23.0	27.6	25.3	26.5
women's activities best in home	439	24.7	13.2	23.7	291	28.1	10.0	27.5	229	38.6	15.8	36.7	38.7	19.0	28.9
live together before marriage	439	58.9	39.5	57.2	289	58.8	40.0	58.1	229	60.3	35.0	58.1	47.3	36.5	41.9
discourage large families	435	76.1	76.3	76.1	293	72.8	50.0	72.0	228	71.8	42.1	69.3	64.2	54.9	59.6
sex ok if like each other	442	63.6	31.6	60.9	293	67.8	40.0	66.9	229	64.8	31.6	62.0	57.8	27.9	43.0

(continued on next page)

	WPI				Control School I				Control School II				National Norms		
	# of Respondents	Male	Female	Total	# of Respondents	Male	Female	Total	# of Respondents	Male	Female	Total	Male	Female	Total
Agree Strongly or Somewhat (continued)															
women should get job eq.	441	95.0	94.7	95.0	294	94.4	100.0	94.6	231	94.3	100.0	94.8	89.0	95.6	92.3
wealthy should pay more tax	439	80.5	76.3	80.2	294	78.2	80.0	78.2	231	85.4	78.9	84.8	78.6	73.6	76.1
marijuana should be legal	439	56.1	50.0	55.6	292	49.3	30.0	48.6	230	36.2	35.0	36.1	47.1	41.7	44.4
outlaw large campaign gifts	439	66.8	57.9	66.1	293	63.3	50.0	62.8	231	69.2	70.0	69.3	62.4	57.2	59.8
can do little to change soc	433	39.1	27.0	38.1	291	53.4	30.0	52.6	228	54.8	33.3	53.1	46.1	36.9	41.5
young more idealistic	433	72.7	50.0	70.7	286	67.0	70.0	67.1	229	78.5	60.0	76.9	74.7	69.3	72.0
young understand more about sex	438	51.2	50.0	51.1	291	54.4	50.0	54.3	229	67.9	65.0	67.7	60.3	58.9	59.6
col reg students off campus	441	7.7	10.8	7.9	291	12.5	10.0	12.4	233	11.3	10.0	11.2	15.3	12.9	14.1
students help eval fac	442	86.1	89.5	86.4	291	74.0	80.0	74.2	232	79.7	65.0	78.4	73.8	76.5	75.1
abolish college grades	436	34.2	42.1	34.9	293	19.8	20.0	19.8	231	25.0	15.8	24.2	29.0	27.5	28.2
de-emphasize org sports	438	33.5	23.7	32.6	292	26.2	40.0	26.7	230	47.6	45.0	47.4	28.9	26.9	27.9
reg student publications	440	18.2	26.3	18.9	291	14.2	30.0	14.8	231	18.5	15.0	18.2	32.3	31.5	31.9
col has right to ban speaker	434	16.6	16.2	16.6	293	19.8	0.0	19.1	229	20.9	5.6	19.7	24.4	19.3	21.9
pref treatment for disad	437	27.3	28.9	27.5	292	22.0	0.0	21.2	230	26.2	30.0	26.5	37.4	37.2	37.3
col too lax on student protests	433	29.3	21.6	28.6	287	31.8	20.0	31.4	222	38.2	22.2	36.9	38.0	30.5	34.3
adopt open admissions at public col	439	40.5	40.5	40.5	293	20.5	20.0	20.5	229	22.9	31.5	23.6	33.6	31.5	32.5
use same degree standard for all	440	85.3	78.9	84.8	284	85.4	100.0	85.9	228	74.5	75.0	74.6	78.2	74.9	76.5
Political Orientation	435				288				226						
far left		3.3	2.6	3.2		2.5	0.0	2.4		1.4	10.5	2.2	2.6	1.7	2.2
liberal		34.8	31.6	34.5		29.5	30.0	29.5		25.1	42.1	26.5	29.9	28.5	29.2
middle-of-the-road		47.4	57.9	48.3		50.4	40.0	50.0		50.2	31.6	48.7	49.7	56.8	53.2
conservative		13.9	7.9	13.3		16.5	30.0	17.0		21.3	15.8	20.8	16.8	12.5	14.7
far right		0.8	0.0	0.7		1.1	0.0	1.0		1.9	0.0	1.8	0.9	0.4	0.7
Marital Status	438				287				231						
presently married		0.0	0.0	0.0		0.0	0.0	0.0		0.5	0.0	0.5	0.7	0.9	0.8
presently engaged		0.7	0.0	0.7		1.4	0.0	1.4		1.4	5.0	1.7	1.8	2.6	2.2
seeing one person exclusively		33.9	32.4	33.8		30.7	10.0	30.0		25.1	45.0	26.8	33.6	36.8	35.2
dating, but no one steadily		38.2	45.9	38.8		44.0	50.0	44.3		38.9	15.0	36.8	44.5	40.4	42.5
not dating in recent months		27.2	21.6	26.7		23.8	40.0	24.4		34.1	35.0	34.2	19.4	19.3	19.4
Students Estimate Chances Are Very Good That They Will															
change major field	436	16.1	18.4	16.3	300	6.9	0.0	6.7	231	6.6	0.0	6.1	13.8	14.2	14.0
change career choice	438	13.5	21.1	14.2	295	5.3	10.0	5.4	230	5.7	5.0	5.7	12.7	14.6	13.6
fail one or more courses	438	7.5	5.3	7.3	299	5.2	0.0	5.0	230	2.4	0.0	2.2	2.4	1.7	2.0
graduate with honors	437	13.5	10.5	13.3	300	15.2	20.0	15.3	228	14.4	10.0	14.0	11.6	9.2	10.4
elected to student office	437	1.0	0.0	0.9	297	1.4	0.0	1.3	231	1.9	0.0	1.7	3.1	2.0	2.5
join a frat or sorority	438	27.5	42.1	28.8	295	16.8	10.0	16.6	231	28.0	40.0	29.0	15.6	16.7	16.2
live in coed dorm	434	17.7	84.2	23.5	297	14.3	90.0	16.8	230	8.1	35.0	10.4	18.7	19.8	19.2
live in commune in col	435	1.0	0.0	0.9	297	0.0	0.0	0.0	230	1.9	0.0	1.7	1.9	1.7	1.8

(continued on next page)

	WPI				Control School I				Control School II				National Norms		
	# of Respondents	Male	Female	Total	# of Respondents	Male	Female	Total	# of Respondents	Male	Female	Total	Male	Female	Total
Students Estimate Chances Are Very Good That They Will (continued)															
be elected to honor soc	435	7.3	7.9	7.4	295	7.4	20.0	7.8	226	9.2	15.0	9.7	6.1	5.9	6.0
make at least a B avg	436	41.0	42.1	41.1	297	42.9	50.0	43.1	230	35.2	40.0	35.7	37.2	39.4	38.3
need extra time to complete degree	436	0.8	0.0	0.7	296	1.7	0.0	1.7	231	0.9	5.0	1.3	4.1	3.9	4.0
work at outside job	436	20.9	34.2	22.0	296	13.6	20.0	13.9	230	20.5	20.0	20.4	24.4	28.7	26.5
seek vocational counseling	435	8.6	21.1	9.7	295	4.2	20.0	4.7	227	10.6	0.0	9.7	9.1	12.4	10.8
seek ind. counseling	435	5.8	5.3	5.7	295	2.5	30.0	3.4	230	5.2	0.0	4.8	6.3	5.9	6.1
enroll in honors courses	435	13.6	23.7	14.5	294	11.6	30.0	12.2	226	14.1	15.0	14.2	9.1	8.6	8.8
get a bachelor's deg	435	87.9	84.2	87.6	294	89.4	60.0	88.4	228	81.8	84.2	82.0	71.5	73.9	72.7
drop out temporarily	437	1.5	0.0	1.4	295	0.4	0.0	0.3	231	1.9	0.0	1.7	1.5	2.1	1.8
drop out permanently	434	0.0	0.0	0.0	294	0.0	0.0	0.0	231	0.0	0.0	0.0	1.0	1.1	1.1
transfer to another col	432	1.3	0.0	1.2	293	2.8	0.0	2.7	229	3.3	0.0	3.1	11.5	14.9	13.2
enter armed forces	436	0.5	2.6	0.7	295	0.0	0.0	0.0	229	1.0	0.0	0.9	3.8	0.9	2.4
be satisfied with col	434	71.7	65.8	71.2	292	63.1	70.0	63.4	227	56.0	50.0	55.5	52.3	62.2	57.2
be more successful than most	437	14.3	2.6	13.3	296	16.1	0.0	15.5	228	11.5	15.0	11.8	20.6	13.1	16.0
find a job in pref field	436	62.3	52.6	61.5	292	67.7	70.0	67.8	226	61.4	57.9	61.1	56.5	54.2	55.3
marry while in college	437	2.3	0.0	2.1	295	4.2	0.0	4.1	230	1.4	0.0	1.3	5.3	7.7	6.5
marry within year after col	435	14.1	7.9	13.6	294	16.2	0.0	15.6	230	16.7	5.0	15.7	17.5	19.3	18.4
Trait Self Ratings (% of Self Ratings Above Average)															
academic ability	441	79.7	94.7	81.0	302	75.0	50.0	74.2	234	82.8	73.7	82.1	60.0	59.5	59.7
athletic ability	440	41.8	36.8	41.4	300	44.1	10.0	43.0	233	37.2	22.2	36.1	53.2	25.8	39.6
artistic ability	440	13.4	23.7	14.3	300	12.4	30.0	13.0	234	18.1	15.8	17.9	18.1	22.7	20.4
cheerfulness	440	40.3	57.9	41.8	300	44.1	80.0	45.3	232	43.2	42.1	43.1	50.0	59.7	54.8
defensiveness	437	24.2	24.3	24.3	298	21.9	30.0	22.1	231	31.9	22.2	31.2	26.5	26.9	26.7
drive to achieve	441	69.2	78.9	70.1	302	63.0	50.0	62.6	234	70.2	78.9	70.9	63.9	64.1	64.0
leadership ability	434	47.4	59.5	48.4	298	42.4	0.0	40.9	225	[illegible]	47.1	43.1	50.9	39.9	45.4
mathematical ability	440	80.1	92.1	81.1	300	76.6	90.0	77.0	230	86.8	83.3	86.5	43.7	28.4	36.1
mechanical ability	441	65.0	31.6	62.1	302	55.5	40.0	55.0	234	69.8	36.8	67.1	34.2	10.2	22.3
originality	441	41.7	39.5	41.5	302	41.1	30.0	40.7	233	48.6	47.4	48.5	40.8	39.3	40.1
physical attractiveness	436	17.3	21.6	17.7	297	25.1	10.0	24.6	215	25.3	23.5	26.1	30.3	25.4	27.9
political conservatism	434	13.6	10.5	13.4	291	14.6	10.0	14.4	230	17.1	10.5	[illegible]	15.0	8.6	11.8
political liberalism	434	30.3	26.3	30.0	293	24.7	30.0	24.9	232	20.2	26.3	20.7	24.0	19.6	21.8
popularity	440	25.3	27.0	25.5	295	31.6	10.0	30.8	231	26.4	26.3	26.4	38.1	29.0	33.6
popularity with opp sex	441	19.4	26.3	20.0	297	26.5	10.0	25.9	234	24.2	36.8	25.2	36.2	27.1	31.7
public speaking ability	438	22.2	23.7	22.4	298	23.3	10.0	22.8	234	20.9	36.8	22.2	27.0	20.8	23.9
self-conf (intellectual)	439	52.9	55.3	53.1	298	50.7	30.0	50.0	233	58.4	63.2	58.8	51.3	38.5	44.9
self-conf (social)	435	26.2	39.5	27.4	298	33.0	10.0	32.2	232	31.0	52.6	32.8	40.7	32.5	36.6
sensitivity to criticism	439	26.2	34.2	26.9	296	21.0	50.0	22.0	232	24.9	31.6	25.4	23.8	28.7	26.2
stubbornesss	439	40.4	44.7	40.8	302	37.3	30.0	37.1	233	37.4	42.1	37.8	35.4	37.4	36.4
understanding of others	441	66.0	60.5	65.5	300	61.0	50.0	60.7	233	53.7	73.7	55.4	64.3	73.4	68.8
writing ability	440	26.4	39.5	27.3	300	26.2	20.0	26.0	233	30.8	52.6	32.6	32.6	36.0	34.3

	WPI				Control School I				Control School II				National Norms		
	# of Respondents	Male	Female	Total	# of Respondents	Male	Female	Total	# of Respondents	Male	Female	Total	Male	Female	Total
Identify with People of My Own Generation	439				295				234						
little or none		4.2	0.0	3.9		6.7	0.0	6.4		2.8	5.0	3.0	3.1	2.3	2.7
moderately		25.9	31.6	26.4		24.6	40.0	25.1		25.7	20.0	25.2	24.7	24.2	24.4
strongly		44.6	39.5	44.2		45.4	40.0	47.1		46.3	60.0	47.4	42.9	44.1	43.5
strongest of all		25.2	28.9	25.5		21.4	20.0	21.4		25.2	15.0	24.4	29.3	29.4	29.4
Identify with People Who Live in My Community	439				295				234						
little or none		10.7	13.2	10.9		14.4	50.0	15.6		13.1	20.0	13.7	12.5	13.9	13.2
moderately		45.9	55.3	46.7		43.5	20.0	42.7		45.8	60.0	47.0	42.1	45.6	43.8
strongly		30.4	21.1	29.6		30.2	20.0	29.8		29.4	20.0	28.6	30.5	28.5	29.5
strongest of all		13.0	10.5	12.8		11.9	10.0	11.9		11.7	0.0	10.7	15.0	12.0	13.5
Identify with People of My Own Religion	438				295				234						
little or none		45.5	44.7	45.4		47.7	[illegible]	[illegible]		37.4	25.0	36.3	32.9	29.6	31.3
moderately		39.2	42.1	39.5		38.6	[illegible]	[illegible]		43.5	55.0	44.4	42.5	43.1	42.8
strongly		13.2	13.2	13.2		10.9	[illegible]	[illegible]		13.6	15.0	13.7	17.1	18.8	18.0
strongest of all		2.0	0.0	1.8		2.8	40.0	4.1		5.6	5.0	5.6	7.4	8.5	7.9
Identify with People of My Own Sex	436				292				229						
little or none		9.3	7.9	9.2		11.6	10.0	11.3		6.2	10.0	6.6	8.0	5.1	6.6
moderately		58.3	57.9	58.3		58.5	50.0	58.2		48.3	35.0	47.2	58.2	51.1	54.7
strongly		30.9	31.6	31.0		27.3	30.0	27.4		43.1	55.0	44.1	30.9	39.5	35.2
strongest of all		1.5	2.6	1.6		2.8	10.0	3.1		2.4	0.0	2.2	2.9	4.3	3.6
Identify with People of My Own Race	437				294				233						
little or none		19.3	10.5	18.5		22.5	30.0	22.8		8.9	5.0	8.6	11.7	10.1	10.9
moderately		47.6	63.2	49.0		50.4	40.0	50.0		44.6	45.0	44.6	44.1	43.7	43.9
strongly		28.6	23.7	28.1		23.6	30.0	23.8		37.6	25.0	36.5	35.1	37.2	36.1
strongest of all		4.5	2.6	4.3		3.5	0.0	3.4		8.9	25.0	10.3	9.2	9.0	9.1

KCC:hk
3-28-75

APPENDIX B

RESTRUCTURING UNDERGRADUATE EDUCATION
AT
WORCESTER POLYTECHNIC INSTITUTE

A Report to the Twenty-eighth Meeting
of the
Advisory Committee for Science Education
National Science Foundation
Washington, D.C.

March 6, 1975

by

William R. Grogan
Dean of Undergraduate Studies
Project Director

Worcester Polytechnic Institute has undertaken a complete and systematic revision of its traditional approach to undergraduate science engineering education. The resulting educational program, known as the WPI Plan, is the product of two years of intensive planning and five years of implementation effort involving every member of the campus community. The program now involves 85% of the 2,000-member undergraduate student body of whom over 95% are science or engineering majors. Next year (1975-76) 93% of the students will pursue their programs in accordance with the new WPI Plan requirements, and thereafter all students will be in the new program.

The National Science Foundation, through its 1972 CoSIP award of $733,000, played a major role in enabling WPI as an institution to implement the restructured programs. The WPI Plan and its implementation process are already the subject of considerable national attention.[1] There is every prospect interest will increase as the reports on the first three-year phase of program evaluation become available later this year.

This presentation will describe the scope of change at WPI and some of the more important features of the new program covering those areas receiving major NSF support, namely, development of (a) the project system, (b) the advising system, and (c) competency examinations and an overall evaluation of the program.

Background

Why Worcester Polytechnic Institute undertook the most drastic change in its 110-year old history could be the subject of a book itself--there was no crisis, not even administrative pressure. There was, however, in the faculty a gnawing dissatisfaction with the demotivating rigidity of the traditional curricula; there was growing concern that science and engineering undergraduates were so constrained by the dictates of an impersonal lock-step system that their full development as thoughtful individuals was not being achieved. To those faculty who followed the careers of the graduates there appeared to be unreasonable discontinuity between the overall preparation of the students and the actual demands placed upon them as young professionals. No one ever questioned the need for a firm foundation in fundamentals, but beyond that a number of paradoxical situations appear: a rigid academic program offered little opportunity for the student to assume responsibility for defining personal objectives; this responsibility became total immediately after graduation. Courses developed long, narrow corridors of knowledge; professional practice required integration of knowledge. The classroom experience was basically passive; professional practice required self-activation. In the academic setting, the student was usually an isolated learner; most of professional life involved personal interactions and shared experiences effectively communicated. A concern for the social implications of scientific and technological development were almost non-existent. The presence of a certain discontinuity between the role of student and professional is natural and unavoidable; the concern at WPI was that the world of preparation and the world of practice were excessively disparate.

---

[1] c.f. Appendix A (a partial summary of papers, publications and news stories published to date)

The WPI study began in 1968. First a strategic analysis evaluated every resource and constraint at the college and included an extensive evaluation of future needs for professional in scientific and engineering careers. A planning committee of six faculty offered 14 alternative paths for the college to follow. After considerable analysis, a statement of goals was adopted by the faculty and the trustees.

The goal statement[2] provided the cornerstone for the second development: the establishment of the degree requirements. The last step was the development of an academic support structure which would prepare students to meet the degree requirements.

In June 1970, the faculty voted to commit the entire college to a new approach to engineering and scientific education which promoted the concept of an individualized curricula for each engineering student. The program placed heavy emphasis on project-based learning and accomplishment. For the baccalaureate degree demonstration of competence through qualifying projects and competence examination is required. There are no specific course requirements but three years of successful work is required before the competency examination can be scheduled.

The Degree Requirements

The WPI Plan calls for the award of an academic degree upon demonstration of competence embodied in the four degree requirements which are:

1. A qualifying project dealing with a problem in one's major area of study (½ year equivalent),

---

[2] from Worcester Polytechnic Institute Operational Catalog, 1975-76:

"It is the goal of the Worcester Polytechnic Institute to bring into the second century of its existence a new, dynamic version of its "Two Towers" tradition.

"By means of coordinated programs tailored to the needs of the individual students, it is the fundamental purpose of WPI to impart to students an understanding of a sector of science and technology and a mature understanding of themselves, and the needs of the people around them. WPI students, from the beginning of their undergraduate education, should demonstrate that they can learn on their own, that they can translate their learning into worthwhile action, and that they are thoroughly aware of the interrelationships among basic knowledge, technological advances, and human need. A WPI education should develop in students a strong degree of self-confidence, an awareness of the community beyond themselves, and an intellectual restlessness that spurs them to continued learning."

Endorsed by the Faculty, December 17, 1969

2. A qualifying project relating science and technology to societal concern and human need (¼ year equivalent),
3. A sufficiency (minor) in an area of the humanities (½ year equivalent),
4. A competency examination in the major field of study (1 week duration).

Projects

The Major Qualifying Project (MQP)

The project approach to learning was selected as a major vehicle for achieving the Plan's goals. To meet this degree requirement, the student must complete two projects, to each of which he must devote the equivalent of a quarter of a year's effort. One of the projects must deal with the student's major area of interest, while the other is intended to relate science and technology to societal concerns and human need. The first of these is known as the major qualifying project (MQP) while the second has been designated the "interactive" qualifying project (IQP).

Projects are, of course, not new to WPI or to engineering and scientific education. The value of carefully supervised independent study is well established. The challenge to WPI in implementing the MQP requirement is not one, therefore, of concept of kind but rather of scale and scope. After this year, when transition to the Plan will be virtually complete, WPI will be graduating classes numbering between four and five hundred students, each of whom will have completed the two qualifying projects. We have been able to test and adopt measures to minimize faculty load dislocations that otherwise might have occurred as a steady-state condition approaches in which twenty to twenty-five percent of all undergraduate activity is project-centered. Among these measures are consolidation of course offerings, changes in course format, increased use of technological aids, and active efforts to foster the formation of group projects rather than individual project efforts. An entirely new registration system was developed and is now operational.

The logistical problems involved in providing each of approximately 500 graduating seniors with two qualifying projects and, in addition to providing pre-qualifying project experience for underclassmen, are indeed formidable. Of course there are many on-campus projects, especially in the sciences, but WPI has tried to provide students with as many opportunities as possible for off-campus MQP and IQP work. A special administrative unit for project operations has been established. A central on-campus project center was constructed to augment departmental facilities and provide a support base for interdisciplinary projects, and a wide variety of off-campus arrangements developed. Three levels of off-campus project sites have been developed:

1. Over 100 project sites[3] with intermittent activity where students execute specific projects as the mutual need of the company and WPI arise,

---

[3] Appendix B contains a listing of the specific sites and centers.

2. Nineteen project sites[4] with sustained activity where one or more faculty advisors are working with students continuously on a variety of projects, some extending over a period of years, and
3. Six project centers[4] (sometimes called internship centers), each of which has a formally appointed WPI director and an on-site counter-part from the company or institution involved.

At these project centers WPI usually maintains a permanent office. A wide variety of multidisciplinary projects are coordinated by the director of the center but with specific projects under direct supervision of faculty advisors from the disciplines involved. Five centers are within commuting distance; one, in Washington, D.C., is a residential site. In all cases project activity is a direct extension of the academic program, the work performed under faculty direction for academic credit while pay is not acceptable. Direct expenses are usually paid by the sponsoring institution.

A fine example of a highly successful center is that at St. Vincent Hospital in Worcester, where over the last two-and-a-half years, 67 students have been involved in 28 different projects working with 11 WPI faculty advisors and 14 hospital advisors.

The following table summarizes the many types of multidisciplinary interactions at the St. Vincent Center:

Participating Hospital Functions	Participating WPI Disciplines
Cardiac Catheterization	Biomedical Engineering
Cardiology	Chemical Engineering
Hematology	Electrical Engineering
Clinical Engineering	Computer Science
Hospital Facilities	Chemistry
Pathology	Life Sciences
Plastic Surgery	Management Engineering
Radiology	Mechanical Engineering
Respiratory Diseases	Materials Science
General Surgery	Physics
Vascular Research	

The interest and cooperation from the industrial community and governmental agencies at all levels has been outstanding. The project effort at WPI has grown from 63 registrations in the fall of 1972 to 535 last fall, with an expected steady-state registration of about 720 per term next year. In spite of this increase in activity, there appears to be no shortage of sound project opportunities and there is currently a waiting list of potential industrial sponsors.

In summary, there appear to be four essential ingredients for successful and sustained off-campus project operation:

1. An interested faculty advisor and cooperative liaison personnel,

---

[4] Appendix B contains a listing of the specific sites and centers.

2. Carefully prepared and documented student proposals acceptable to advisor and liaison before work is initiated or resources committed (much learning takes place here),

3. Requirement of periodic written progress reports with at least one formal oral preliminary report, and

4. High final report standards, both written and oral, with sponsor evaluation an important factor in grading.

The "Interactive" Qualifying Project (IQP)

Courses in social science have often been required in science and engineering curricula. While valuable in themselves, there was no experiential component which brought into physical reality for the student the social, political, or humanistic dimensions of their technological world. Each graduate at WPI is now expected to qualify in a field project which is designed to develop a greater awareness of the relationship between science and engineering on one hand and social concern and human values on the other. This component of the WPI program is highly experimental but has proven to be one of the most fascinating.

The objectives of the IQP can be summarized as follows: (1) to create through experiential education an awareness of socially related technological interactions; (2) to enable the identification of socio-technological systems, subsystems, and their linkages; (3) to cultivate the habit of questioning social values and structures; (4) to develop and integrate the skills of evaluation and analysis; (5) to provide methods for assessing the impact of technology, and (6) to encourage the recommendations of policy.

The project center in Washington, for example, is primarily devoted to IQP work. The center accommodates 80 students. Following a preparation period on campus, each student resides in Washington for seven weeks, involved with project field work in governmental and private agencies; this precedes a report-writing phase back on campus. A summary of the sponsoring Washington agencies and the titles of projects undertaken with them is contained in Appendix C.

The Humanities Sufficiency

The "broadening" requirement of a traditional science or engineering program usually calls for the student to take some distributed coursework in the humanities. The WPI Plan proceeds on the underlying assumption that it is better to have a deeper understanding of the humanities in at least one area than to have a surface view of many. To that end, the WPI student must develop a specific humanities minor (sufficiency). He or she selects five thematically related humanities courses, and in a sixth activity must conduct an independent study developing a unifying theme for the selected courses. The thematic relationship clause does not constrain the student to courses of one type, e.g., history courses. Should they wish to concentrate on a particular period in history they may take, as well as history courses dealing with that period, courses in English which deal with the literature of that period. Alternatively, the student may prefer to develop the equivalent of the course material entirely on his or her own, through independent study, in which case he or she would satisfy the degree requirement by successfully passing a sufficiency examination. At the present time WPI students are developing sufficiencies (or minors) in history, philosophy, languages, literature, music, and drama. The humanities program has been strengthened considerably through assistance from the National Endowment for the Humanities based on a proposal that was carefully developed to complement the NSF support for the sciences.

The Competency Examination

Four weeks a year, between the seven-week terms, are assigned exclusively for student competency examinations. The students' competence in their major fields is tested through complex problems--something akin to what he or she would be expected to do as a baccalaureate graduate in the chosen major. The student is assigned one or more problems and has access to reference materials, computer facilities, library, laboratories and faculty. At the end of the assigned period each student reports back to the assigned examination committee with a written report. An oral examination follows in which the method of attack, soundness of fundamental principles and alternate approaches to the problem are discussed. The competency examination is designed to test for an understanding of methods, resources, fundamental principles and theories, as well as application of current techniques in the field. Despite a great deal of effort, some of it supported by NSF, much remains to be learned about this type of competency measurement and developmental work continues in this area.

The Support Structure

The advising system is of critical importance as each student works with his or her advisor developing a personalized curriculum. Each student must have a firm curriculum planned ahead for one year and a tentative one beyond that. Incremental changes may be made at the opening of any of the seven-week terms. Each term a student normally carries three courses or an equivalent level of project work. Considerable counseling is also needed in the selection of appropriate project activities, the humanities sufficiency and, of course, the timing of the competency examination. The organization of the large amount of information needed to support this system has proceeded very well--a completely new registration system has been developed to accommodate the five terms per year, the individualized curricula, the new grading system (Distinction, Acceptable, No Record) and, of course, the many hundreds of project combinations. An on-line computer-controlled registration system has been developed which assists program planning for an entire academic year, yet allows opportunities for regular schedule review and revision. Current and projected student schedules, transcripts and degree status are instantly available on remote CRT terminals at the office of the Regisrar and the Dean of Academic Advising.

Supportive of all instructional modes is an extensive and continually developing capability in various media, including a TV studio with taping facilities, closed circuit television for all campus buildings, a time-shared remote access computer with over twenty teletype and CRT remote terminals located throughout the campus including 24-hour accessibility in the dormitories, a hands-on video tape viewing capability with twenty video-recorder viewing stations, an extensive library of specially prepared interactive computer programs, and a modern, spacious library holding some 120,000 books, periodicals, and non-print materials as well as a 250,000 item collection of technical reports and microforms.

The use of TV tapes has been highly effective in releasing faculty time to accommodate the other demands of the Plan. To date over half of the entire faculty have taken advantage of a highly effective TV taping facility to prepare tapes on everything from equipment orientation demonstrations to special course topics that often cause difficulties. To date over 700 TV tapes have been made by WPI faculty and tapes are integrated supplements to at least 60 on-going courses. The central viewing facility registered over 14,500 student viewings last year, up from 3,100 just two years ago. This does not include the use of departmental and laboratory viewing sites. A large program is now underway to expand the use of TV tapes in laboratories to save staff time in introducing students to a wide variety of techniques and methods of equipment operation.

Foundation Support

A number of private foundations have joined the National Science Foundation and the National Endowment for the Humanities in support of the WPI Plan implementation program. Among these have been the Carnegie Corporation in support of course revision, the Sloan Foundation in support of development of the social sciences and preparation of faculty to advise socially-oriented projects, and the Mellon Foundation in support of the new humanities program. The early recognition of the innovative qualities of the WPI program by the National Science Foundation has most recently been complimented by the award of a Venture Fund Grant to WPI by the Ford Foundation.

Evaluation

There are currently underway three formal NSF sponsored evaluations of the effectiveness of the WPI Plan:

1. A panel of nationally-known educators and industrialists[5] which visits the campus twice a year,

---

[4] The Advisory Panel consists of the following:

Dr. Lee Harrisberger, Dean of Science and Engineering, University of Texas of the Permian Basin
Dr. Bruce Mazlish, Professor of History, Massachusetts Institute of Technology
Dr. George E. Pake, Vice President, Research, Xerox Corporation
Dr. Kenneth G. Picha, School of Engineering, University of Massachusetts
Dr. Eugene D. Reed, Executive Director, Bell Telephone Laboratories Ocean Systems Division
Dr. David Riesman, Department of Sociology, Harvard University
Dr. John R. Whinnery, Department of Electrical Engineering, University of California

2. A study of faculty and administrative changes, both attitudinal and organizational, caused by the Plan and carried out by Harvard University consultants. The factors under consideration in the faculty/administration study are:

    a. Professional satisfaction and growth,
    b. Perceptions of quality of student learning,
    c. Perceptions of rewards, effort and equity,
    d. Intrinsic satisfaction,
    e. Stress and overload,
    f. Interference items,
    g. Patterns of interaction.

    With the assistance of grant extension from NSF awarded in May 1974, the study has been extended to include two comparison colleges. Both colleges have much in common with WPI and have been most cooperative in providing a base for parallel studies.

3. The effect of the Plan on students carried out by Dr. Cohen of the Education Development Center (EDC) in Cambridge, Massachusetts. This investigation also includes a comparison study of engineering students at other colleges which have not undergone the changes seen at WPI.

    The evaluation of the students has centered around a study of the following factors:

    a. Scientific and engineering competence,
    b. Self-concepts,
    c. Attitudes and educational goals,
    d. Background and abilities,
    e. Characteristics of learners.

    It is planned to continue the study of the students through their early professional lives, thereby completing what promises to be the most comprehensive study of the process and effects of change in a college of science and engineering available to the academic community to date.

The Advisory Panel has submitted an individual report following each visit. We expect a combined report will follow the Panel's sixth and final visit in April 1975. The final reports on the faculty and student evaluations will be available in the file.

The EDC studies already show that the desired developments of self-confidence, of willingness to assume responsibility, and of greatly increased social consciousness are indeed taking place in WPI students.

The qualifying project work, a major component of the WPI Plan and the major development supported by the NSF grant, is proving to be an extremely effective educational concept. The students are responding to the requirement with enthusiasm. Faculty involvement is over 90% and, despite the mind-boggling logistical problems, the program is developing on schedule.

Off-campus project sponsors have also assisted in the evaluation. Of approximately 200 project questionnaires studied in January 1975, it was encouraging to note that the sponsors felt 63% of the work achieved expectations, 26% exceeded expectation, while only 4% were in the combined categories of "fair" or "expectations not achieved." Only 3% of the participating sponsors said they would prefer not to continue in the program while 43% wished to increase their commitment, the remainder being satisfied with the present level of activity. From the students' returns, it is interesting to note that 46% of the off-campus liaison personnel were rated as "outstanding" while 46% of the students also said that they would be happy to be associated with their sponsor when they graduated.

Questionnaires received by Dr. Cohen's group from students and sponsors indicate that both groups feel a great deal of learning is taking place. In rating their own experimental expertise at the start and at the end of the projects, the 70 students replied as follows:

	Outstanding	Good	Fair	Poor
At start	5%	28%	49%	18%
At end	31%	63%	6%	0%

In rating personal learning, 52% of the students listed "outstanding" with 37% as "good."

In rating their own performance and achievement, the students listed themselves 19% "outstanding" and 65% "good" while sponsor ratings are running 26% "outstanding" and 63% "good."

The evaluation of activities of WPI's Plan students when they become alumni will, of course, be the ultimate test of the effectiveness of the WPI Plan in achieving the educational goals it was designed to achieve.

APPENDIX C

STUDENT QUESTIONNAIRE FINDINGS

1. Questionnaire A
2. Questionnaire B
3. Questionnaire C

QUESTIONNAIRE FORM A

BACKGROUND INFORMATION

			WPI	CCT	SIT	Total N	Levels of Significance
1-3.	Your school	N =	277	195	278	750	
4.	Are you						
	1. On the Plan and basically satisfied		78.9%	--	--		
	2. On the Plan but wish you were off		9.5%	--	--		
	3. Off the Plan and basically satisfied		11.3%	--	--		
	4. Off the Plan but wish you were on		0.4%	--	--		
5.	What year are you in at your school?						
	1. Freshman		26.5%	31.3%	14.0%		
	2. Sophomore		26.1%	23.1%	16.6%		
	3. Junior		21.7%	24.1%	13.7%		
	4. Senior		24.3%	21.5%	14.4%		
	5. Other		1.5%	--	41.4%		
6.	Are you						
	1. Male		90.6%	88.7%	92.8%		NS
	2. Female		9.4%	11.3%	7.2%		
7.	When applying to schools, was this school						
	1. Your first choice		78.1%	79.4%	79.6%		NS
	2. Second choice		14.2%	14.4%	14.2%		
	3. Third or lower choice		7.7%	6.2%	6.2%		
8.	Why did you select this school?						
	1. Course offerings		24.0%	43.8%	42.0%		x^2 = 110.947 $p < .001$
	2. Advice from high school counselors		8.1%	10.4%	6.8%		
	3. WPI Plan/special programs offered here		42.1%	10.4%	10.1%		
	4. Advice from students here		4.1%	2.1%	3.4%		
	5. Advice from alumni		1.4%	0.7%	2.4%		
	6. Parental advice		4.1%	8.3%	5.3%		
	7. Financial aid offer		10.9%	16.0%	15.5%		
	8. Close to home		5.4%	4.2%	14.0%		
	9. Far from home		--	4.2%	0.5%		
	10. Visit to the campus		40.2%	48.2%	11.5%		
	11. Faculty		6.9%	6.2%	6.3%		
	12. Intellectual atmosphere		16.7%	9.9%	26.0%		
	13. Other		36.3%	35.8%	56.3%		

NS = not significant

I. INSTRUCTIONS: Below are listed a number of opinion statements about various aspects of life at your school. Please indicate to what extent you personally agree or disagree with each statement. You should do this by circling next to each statement the one of the six symbols which best represents your feeling about the statement.

NOTE: Responses are indicated as means. The scale used was:
1 = Strongly Agree; 7 = Strongly Disagree.

N = 747

	WPI	CCT	SIT	F	p
10. In general, I feel good about the directions in which this school is developing.	2.7	2.6	3.2	11.4	<.001
11. I would prefer this school become more innovative.	3.3	2.9	2.6	17.76	<.001
12. The faculty are well suited to providing the education that the school advertises.	3.0	2.1	2.6	19.8	<.001
13. The current educational programs here provide training that is too specialized.	4.9	5.0	5.2		NS
14. The students here now are the kind who can benefit most from the academic program being offered.	3.9	2.9	3.1	32.4	<.001
15. I am completely satisfied with my own present level of competence in my major field.	3.5	3.5	3.6		NS
16. Being at this school forces me to think about things in new ways.	2.9	2.9	2.9		NS
17. I would prefer this school move more in the direction of developing more good, traditional engineering programs.	4.7	4.6	4.6		NS
18. The educational program at this school doesn't change students basically.	4.3	4.6	4.5		NS
19. The advising system here is a waste of time.	4.5	4.0	3.7	9.7[illegible]	<.001
20. I find myself overloaded with work here, doing more than ever before.	3.2	3.7	3.4	3.37	<.03
21. The experience here retards student development in some ways.	4.0	3.9	4.0		NS
22. I feel that the administration will listen to my opinion on things.	3.7	3.8	3.9		NS
23. I am not sure what this place is all about.	4.8	5.2	5.5	12.38	<.001
24. I find myself strongly motivated to work here.	3.2	3.5	3.3		NS
25. I have considerable informal contact with faculty.	3.7	4.1	3.6		NS
26. I find myself reading more and more outside my major field.	3.9	4.3	3.9		NS
27. I am spending more of my time working outside the school in the community.	5.2	5.8	5.5	7.5	<.001
28. Recently I have been feeling stressed and fatigued.	3.2	3.4	3.4		NS
29. The pursuit of cultural and aesthetic activities is important to me.	2.5	2.8	2.4		NS

II. **INSTRUCTIONS:** Please indicate how important you feel each of the following choices is by placing an "X" on the appropriate line.

NOTE: Responses are indicated as means. The scale used was:
1 = Not Very Important; 2 = Important; 3 = Very Important

	WPI	CCT	SIT	Levels of Significance
WITH REGARD TO THE FOLLOWING EDUCATIONAL GOALS, HOW IMPORTANT DO YOU THINK IT IS FOR STUDENTS:				
30. To develop the skills necessary to earn a good living	2.5	2.7	2.5	NS
31. To learn to make friends and get along with people	2.7	2.8	2.6	.008
32. To learn to think clearly and independently	2.9	2.8	2.8	NS
33. To gain an understanding of the main areas of knowledge	2.5	2.4	2.6	NS
34. To develop strengths of character and personality	2.6	2.6	2.6	NS
35. To develop physical and emotional well-being	2.6	2.6	2.5	NS
36. To develop the desire and capacity for lifelong learning	2.4	2.3	2.4	.001
37. To become an interesting individual person to oneself and others	2.3	2.3	2.3	.029
38. To develop self confidence	2.7	2.7	2.6	NS
39. To learn how to make decisions	2.7	2.7	2.8	NS
HOW IMPORTANT DO YOU THINK THESE REASONS ARE FOR A STUDENT HERE TO UNDERTAKE AN OFF-CAMPUS PROJECT:				
40. To learn about career possibilities	2.1	2.1	2.2	NS
41. To prepare him/her to cope with the adult world of work	2.3	2.2	2.2	.001
42. To get a break from the restrictions of school rules and life	1.7	1.8	1.7	NS
43. To be of service to others	1.9	1.9	1.9	NS
44. To get a break from the classroom and academic requirements	1.7	1.9	1.7	.003
45. To satisfy academic requirements	1.6	1.6	1.6	NS
46. To do what his/her friends do	1.1	1.2	1.1	.001
47. To develop personal qualities such as increased confidence, self-reliance and maturity	2.5	2.5	2.5	.035
48. To be free, live in a new way, do one's own thing	1.7	2.0	1.8	NS

	WPI	CCT	SIT	Levels of Significance
49. To learn more about other, different social groups and environments from their own	2.2	2.1	2.1	.001
50. To gain practical knowledge of a subject or field studied in school	2.6	2.5	2.6	.001
51. To have time for his/her own creative work	2.2	2.2	2.3	.031
WHICH OF THE FOLLOWING DO YOU THINK WILL BE IMPORTANT PROBLEMS FOR STUDENTS ON AN OFF-CAMPUS WORK JOB OR PROJECT:				
52. The ability to master the various facets of the job, to the satisfaction of their employers	2.2	2.2	2.1	NS
53. The ability to get along with their supervisors	2.1	2.1	2.1	NS
54. The ability to get along with their fellow workers	2.3	2.3	2.2	NS
55. The ability to stick it out even when the job is boring	2.1	2.2	2.0	NS
56. The ability to meet their appointments regularly and faithfully	2.3	2.3	2.3	NS

III. INSTRUCTIONS: Rate each of the following objects according to how you personally perceive it or feel toward it at the moment by placing an "X" somewhere along each of the seven-point adjective scales listed under the obje

NOTE: Responses are indicated as means. The scale used was:
1 = left side of pair; 7 = right side of pair

	WPI	CCT	SIT	F	p
THE EDUCATIONAL PROGRAM HERE IS:					
57. purposeful/aimless	2.2	2.0	2.2	3.04	$<.05$
58. good/bad	2.5	2.2	2.5		NS
59. strong/weak	2.9	2.3	2.5	15.147	$<.001$
60. active/passive	2.6	3.1	3.2	14.604	$<.001$
61. stable/changing	4.9	3.4	3.3	79.185	$<.001$
62. hopeful/hopeless	2.5	2.7	2.8	3.83	$<.02$
63. broad/narrow	3.0	3.3	3.2		NS
64. fast/slow	2.1	2.7	2.6	17.33	$<.001$
65. cautious/rash	4.1	3.4	3.1	46.93	$<.001$
66. wise/foolish	3.1	2.7	3.0	4.679	$<.01$
67. flexible/rigid	2.1	3.4	4.2	114.41	$<.001$
68. complex/simple	2.7	2.9	3.1	7.099	$<.001$

A5

	UPI	CCT	SIT	F	p
THE FACULTY AT THIS SCHOOL ARE:					
70. purposeful/aimless	2.6	2.4	2.7	4.1	<.02
71. good/bad	2.5	2.4	2.6	NS	
72. strong/weak	2.7	2.6	2.9	4.815	<.009
73. active/passive	2.8	2.7	3.0	NS	
74. stable/changing	3.3	3.2	2.9	4.95	<.008
75. hopeful/hopeless	2.9	2.9	3.0	NS	
76. broad/narrow	3.3	3.1	3.5	NS	
77. fast/slow	3.0	2.7	3.1	4.84	<.009
78. cautious/rash	3.4	3.3	3.0	8.117	<.001
79. wise/foolish	2.8	2.5	2.8	4.110	<.017
5. flexible/rigid	3.1	3.5	3.7	11.321	<.001
6. complex/simple	3.1	3.0	3.1	NS	
THE STUDENTS HERE ARE:					
7. purposeful/aimless	3.4	3.4	3.2	NS	
8. good/bad	3.2	3.0	3.0	3.034	<.008
9. strong/weak	3.5	3.3	3.3	NS	
10. active/passive	4.0	3.9	3.9	NS	
11. stable/changing	4.3	3.8	3.7	13.317	<.001
12. hopeful/hopeless	3.4	3.4	3.3	NS	
13. broad/narrow	3.8	3.4	3.8	3.660	<.03
14. fast/slow	3.6	3.4	3.3	4.015	<.018
15. cautious/rash	3.8	4.0	3.5	10.47	<.001
16. wise/foolish	3.8	3.8	3.6	4.210	<.016
17. flexible/rigid	3.3	3.2	3.5	3.690	<.026
18. complex/simple	3.5	3.5	3.6	NS	
I AM:					
19. purposeful/aimless	2.4	2.6	2.2	6.508	<.002
20. good/bad	2.6	2.5	2.4	NS	
21. strong/weak	2.7	2.8	2.5	3.730	<.025
22. active/passive	3.1	3.2	2.7	7.987	<.001
23. stable/changing	3.9	3.5	3.4	5.586	<.004
24. hopeful/hopeless	2.3	2.3	2.1	NS	
25. broad/narrow	2.8	2.7	2.4	4.789	<.009

	WPI	CCT	SIT	F	p
26. fast/slow	3.3	3.1	2.9	6.273	<.002
27. cautious/rash	3.1	2.9	3.0		NS
28. wise/foolish	3.2	3.2	2.9	7.347	<.001
29. flexible/rigid	2.5	2.7	2.4		NS
30. complex/simple	2.8	3.0	2.9		NS

I. In the space below, please describe what you believe are the most successful accomplishments of the program at this school right now.

WPI Freshmen

13	the Plan: project work as part of academic curriculum
10	freedom, flexibility of choosing courses
7	learn decision-making
7	develop self-reliance, competence
6	grading system
5	faculty advisors
5	good career preparation
3	good chance to become involved with outside world
2	IQP
2	good faculty/student relationships
2	spend time with varied groups of people on/off-campus
2	sufficiency requirement
1	IPI work
1	MQP
1	"students who have graduated through this program are better qualified"
1	7-week terms
1	varied program
1	good liberal engineering education
1	"makes you stop and think about what you really want out of an education; you can then proceed to get what you need from the school"
1	teaches you how to work with others
1	student goes in the direction, at the rate he chooses
1	abolition of unnecessary, useless requirements
1	less emphasis on grades, more on learning
1	application of theory to practice

Clarkson Freshmen

26	good preparation for a career
10	good education--broad undergraduate/technical/well-organized
3	hard work
3	good reputation
2	"better insight of the technique and purpose of engineering and an introduction to the practical knowledge common to most engineers"
2	good job placement
2	learn to live independently
1	good faculty/student relationships
1	develop self-reliance, well-being, cooperation

1	high rating of Clarkson by employers
1	flexibility in courses
1	technical equipment available
1	first two years offer a good background in major field
1	good faculty
1	enables student to cope with other people
1	breaking from tradition

WPI Seniors

19	incorporation of project work into academic program
8	projects give students a chance to see what life is like in the real working world; to become more aware of society; to deal with people of other disciplines
6	fosters self-reliance, experience, responsibility, character development, creativity
5	flexibility of Plan
4	competency exam--students prove their competence
3	IPI method of teaching
3	MQP
2	exchange program with Consortium of colleges
2	no course requirements outside major
2	course work
2	advising system
1	good, close student/faculty relationships
1	good preparation for graduate school
1	relating school to industry
1	video format
1	allows student to determine own pace, directions, goals
1	IQP
1	sufficiency program
1	loose structure of course selection
1	grading system

Clarkson Seniors

11	good preparation for a career
9	Clarkson's good reputation: high rate of employment for graduates
5	good student/faculty relationships
3	close-knit community
3	good education
2	ability to change/add majors--flexible program
2	programs student-oriented
1	executive in residence
1	independent study
1	diversified faculty: even within one department; allows exposure to many areas of specialization
1	good research program
1	new, effective president
1	exposure of students in one field to students in many other fields--ability to live and work together
1	good wide choice of courses
1	highly qualified faculty
1	getting a good environmental engineering program started

II. What do you feel are the most important problems or disadvantages associated with the program here?

WPI Freshmen

7	7-week terms too short
4	open admissions--too many non-motivated students
4	prefer ABC NR grading system
4	not enough women
3	lack of encouragement to work hard
3	weak humanities courses--need to be broadened
3	lack of understanding of the Plan by students
3	unhealthy social life
3	hard for grad schools/business to evaluate grades
3	getting used to "free" atmosphere--without structured work; some students take advantage not to work
2	sufficiency, humanities requirement
2	education too narrow-minded; lack of diversity of courses
2	student apathy
1	too many requirements in major field
1	little opportunity to take courses outside major field
1	faculty split over Plan
1	better, inexpensive housing needed
1	sports
1	many professors mediocre
1	better course scheduling needed
1	too much pressure

Clarkson Freshmen

8	need broader course selection: law, humanities, medicine, etc.
7	education too general; some required courses do not pertain to major field--too much humanities required
6	too much work
4	pace is fast, too fast for some
4	poor social life; too few activities
3	more lab courses, esp. for freshmen--to apply theory to practice
3	some professors are poor teachers
3	poor faculty/student relationships
2	too strict adherence to rules
1	program for freshmen too rigid, too broad: should be more specialized in various fields
1	need more tests with less material covered on each
1	too much theory
1	too expensive
1	poor housing situation
1	"good teachers leaving due to lack of financial security"
1	"courses emphasize mechanics, rather than theory"
1	"need more women"
1	poor library
1	"graduates often unable to get jobs"
1	difficult for students to change programs
1	not enough basic courses
1	program too complex
1	program not changing with the times

QUESTIONNAIRE FORM A

BACKGROUND INFORMATION

		WPI	CCT	SIT	Total N	Levels of Significance
1-3.	Your school N =	277	195	278	750	
4.	Are you					
	1. On the Plan and basically satisfied	78.9%	--	--		
	2. On the Plan but wish you were off	9.5%	--	--		
	3. Off the Plan and basically satisfied	11.3%	--	--		
	4. Off the Plan but wish you were on	0.4%	--	--		
5.	What year are you in at your school?					
	1. Freshman	26.5%	31.3%	14.0%		
	2. Sophomore	26.1%	23.1%	16.6%		
	3. Junior	21.7%	24.1%	13.7%		
	4. Senior	24.3%	21.5%	14.4%		
	5. Other	1.5%	--	41.4%		
6.	Are you					
	1. Male	90.6%	88.7%	92.8%		NS
	2. Female	9.4%	11.3%	7.2%		
7.	When applying to schools, was this school					
	1. Your first choice	78.1%	79.4%	79.6%		
	2. Second choice	14.2%	14.4%	14.2%		NS
	3. Third or lower choice	7.7%	6.2%	6.2%		
8.	Why did you select this school?					
	1. Course offerings	24.0%	43.8%	42.0%		
	2. Advice from high school counselors	8.1%	10.4%	6.8%		
	3. WPI Plan/special programs offered here	42.1%	10.4%	10.1%		
	4. Advice from students here	4.1%	2.1%	3.4%		
	5. Advice from alumni	1.4%	0.7%	2.4%		
	6. Parental advice	4.1%	8.3%	5.3%		$x^2 = 110.947$
	7. Financial aid offer	10.9%	16.0%	15.5%		$p < .001$
	8. Close to home	5.4%	4.2%	14.0%		
	9. Far from home	--	4.2%	0.5%		
	10. Visit to the campus	40.2%	48.2%	11.5%		
	11. Faculty	6.9%	6.2%	6.3%		
	12. Intellectual atmosphere	16.7%	9.9%	26.0%		
	13. Other	36.3%	35.8%	[illegible].3%		

NS = not significant

I. INSTRUCTIONS: Below are listed a number of opinion statements about various aspects of life at your school. Please indicate to what extent you personally agree or disagree with each statement. You should do this by circling next to each statement the one of the six symbols which best represents your feeling about the statement.

NOTE: Responses are indicated as means. The scale used was:
1 = Strongly Agree; 7 = Strongly Disagree.

N = 747

	WPI	CCT	SIT	F	p
10. In general, I feel good about the directions in which this school is developing.	2.7	2.6	3.2	11.4	<.001
11. I would prefer this school become more innovative.	3.3	2.9	2.6	17.76	<.001
12. The faculty are well suited to providing the education that the school advertises.	3.0	2.1	2.6	19.8	<.001
13. The current educational programs here provide training that is too specialized.	4.9	5.0	5.2		NS
14. The students here now are the kind who can benefit most from the academic program being offered.	3.9	2.9	3.1	32.4	<.001
15. I am completely satisfied with my own present level of competence in my major field.	3.5	3.5	3.6		NS
16. Being at this school forces me to think about things in new ways.	2.9	2.9	2.9		NS
17. I would prefer this school move more in the direction of developing more good, traditional engineering programs.	4.7	4.6	4.6		NS
18. The educational program at this school doesn't change students basically.	4.3	4.6	4.5		NS
19. The advising system here is a waste of time.	4.5	4.0	3.7	9.77	<.001
20. I find myself overloaded with work here, doing more than ever before.	3.2	3.7	3.4	3.37	<.03
21. The experience here retards student development in some ways.	4.0	3.9	4.0		NS
22. I feel that the administration will listen to my opinion on things.	3.7	3.8	3.9		NS
23. I am not sure what this place is all about.	4.8	5.2	5.5	12.38	<.001
24. I find myself strongly motivated to work here.	3.2	3.5	3.3		NS
25. I have considerable informal contact with faculty.	3.7	4.1	3.6		NS
26. I find myself reading more and more outside my major field.	3.9	4.3	3.9		NS
27. I am spending more of my time working outside the school in the community.	5.2	5.8	5.5	7.5	<.001
28. Recently I have been feeling stressed and fatigued.	3.2	3.4	3.4		NS
29. The pursuit of cultural and aesthetic activities is important to me.	2.5	2.8	2.4		NS

II. **INSTRUCTIONS**: Please indicate how important you feel each of the following choices is by placing an "X" on the appropriate line.

NOTE: Responses are indicated as means. The scale used was:
1 = Not Very Important; 2 = Important; 3 = Very Important

	WPI	CCT	SIT	Levels of Significance
WITH REGARD TO THE FOLLOWING EDUCATIONAL GOALS, HOW IMPORTANT DO YOU THINK IT IS FOR STUDENTS:				
30. To develop the skills necessary to earn a good living	2.5	2.7	2.5	NS
31. To learn to make friends and get along with people	2.7	2.8	2.6	.008
32. To learn to think clearly and independently	2.9	2.8	2.8	NS
33. To gain an understanding of the main areas of knowledge	2.5	2.4	2.6	NS
34. To develop strengths of character and personality	2.6	2.6	2.6	NS
35. To develop physical and emotional well-being	2.6	2.6	2.5	NS
36. To develop the desire and capacity for lifelong learning	2.4	2.3	2.4	.001
37. To become an interesting individual person to oneself and others	2.3	2.3	2.3	.029
38. To develop self confidence	2.7	2.7	2.6	NS
39. To learn how to make decisions	2.7	2.7	2.8	NS
HOW IMPORTANT DO YOU THINK THESE REASONS ARE FOR A STUDENT HERE TO UNDERTAKE AN OFF-CAMPUS PROJECT:				
40. To learn about career possibilities	2.1	2.1	2.2	NS
41. To prepare him/her to cope with the adult world of work	2.3	2.2	2.2	.001
42. To get a break from the restrictions of school rules and life	1.7	1.8	1.7	NS
43. To be of service to others	1.9	1.9	1.9	NS
44. To get a break from the classroom and academic requirements	1.7	1.9	1.7	.003
45. To satisfy academic requirements	1.6	1.6	1.6	NS
46. To do what his/her friends do	1.1	1.2	1.1	.001
47. To develop personal qualities such as increased confidence, self-reliance and maturity	2.5	2.5	2.5	.035
48. To be free, live in a new way, do one's own thing	1.7	2.0	1.8	NS

	WPI	CCT	SIT	Levels of Significance
49. To learn more about other, different social groups and environments from their own	2.2	2.1	2.1	.001
50. To gain practical knowledge of a subject or field studied in school	2.6	2.5	2.6	.001
51. To have time for his/her own creative work	2.2	2.2	2.3	.031
WHICH OF THE FOLLOWING DO YOU THINK WILL BE IMPORTANT PROBLEMS FOR STUDENTS ON AN OFF-CAMPUS WORK JOB OR PROJECT:				
52. The ability to master the various facets of the job, to the satisfaction of their employers	2.2	2.2	2.1	NS
53. The ability to get along with their supervisors	2.1	2.1	2.1	NS
54. The ability to get along with their fellow workers	2.3	2.3	2.2	NS
55. The ability to stick it out even when the job is boring	2.1	2.2	2.0	NS
56. The ability to meet their appointments regularly and faithfully	2.3	2.3	2.3	NS

III. INSTRUCTIONS: Rate each of the following objects according to how you per sonally perceive it or feel toward it at the moment by placing an "X" some where along each of the seven-point adjective scales listed under the obje

NOTE: Responses are indicated as *means*. The scale used was:
1 = left side of pair; 7 = right side of pair

	WPI	CCT	SIT	F	p
THE EDUCATIONAL PROGRAM HERE IS:					
57. purposeful/aimless	2.2	2.0	2.2	3.04	$<.05$
58. good/bad	2.5	2.2	2.5		NS
59. strong/weak	2.9	2.3	2.5	15.147	$<.001$
60. active/passive	2.6	3.1	3.2	14.604	$<.001$
61. stable/changing	4.9	3.4	3.3	79.185	$<.001$
62. hopeful/hopeless	2.5	2.7	2.8	3.83	$<.02$
63. broad/narrow	3.0	3.3	3.2		NS
64. fast/slow	2.1	2.7	2.6	17.33	$<.001$
65. cautious/rash	4.1	3.4	3.1	46.93	$<.001$
66. wise/foolish	3.1	2.7	3.0	4.679	$<.01$
67. flexible/rigid	2.1	3.4	4.2	114.41	$<.001$
68. complex/simple	2.7	2.9	3.1	7.099	$<.001$

A5

	WPI	CCT	SIT	F	p
THE FACULTY AT THIS SCHOOL ARE:					
70. purposeful/aimless	2.6	2.4	2.7	4.1	<.02
71. good/bad	2.5	2.4	2.6		NS
72. strong/weak	2.7	2.6	2.9	4.815	<.009
73. active/passive	2.8	2.7	3.0		NS
74. stable/changing	3.3	3.2	2.9	4.95	<.008
75. hopeful/hopeless	2.9	2.9	3.0		NS
76. broad/narrow	3.3	3.1	3.5		NS
77. fast/slow	3.0	2.7	3.1	4.84	<.009
78. cautious/rash	3.4	3.3	3.0	8.117	<.001
79. wise/foolish	2.8	2.5	2.8	4.110	<.017
5. flexible/rigid	3.1	3.5	3.7	11.321	<.001
6. complex/simple	3.1	3.0	3.1		NS
THE STUDENTS HERE ARE:					
7. purposeful/aimless	3.4	3.4	3.2		NS
8. good/bad	3.2	3.0	3.0	3.034	<.008
9. strong/weak	3.5	3.3	3.3		NS
10. active/passive	4.0	3.9	3.9		NS
11. stable/changing	4.3	3.8	3.7	13.317	<.001
12. hopeful/hopeless	3.4	3.4	3.3		NS
13. broad/narrow	3.8	3.4	3.8	3.660	<.03
14. fast/slow	3.6	3.4	3.3	4.015	<.018
15. cautious/rash	3.8	4.0	3.5	10.47	<.001
16. wise/foolish	3.8	3.8	3.6	4.210	<.016
17. flexible/rigid	3.3	3.2	3.5	3.590	<.026
18. complex/simple	3.5	3.5	3.6		NS
I AM:					
19. purposeful/aimless	2.4	2.6	2.2	6.508	<.002
20. good/bad	2.6	2.5	2.4		NS
21. strong/weak	2.7	2.8	2.5	3.730	<.025
22. active/passive	3.1	3.2	2.7	7.987	<.001
23. stable/changing	3.9	3.5	3.4	5.586	<.004
24. hopeful/hopeless	2.3	2.3	2.1		NS
25. broad/narrow	2.8	2.7	2.4	4.789	<.009

	WPI	CCT	SIT	F	p
26. fast/slow	3.3	3.1	2.9	6.273	< .002
27. cautious/rash	3.1	2.9	3.0		NS
28. wise/foolish	3.2	3.2	2.9	7.347	< .001
29. flexible/rigid	[illegible].5	2.7	2.4		NS
30. complex/simple	2.8	3.0	2.9		NS

I. In the space below, please describe what you believe are the most successful accomplishments of the program at this school right now.

WPI Freshmen

13	the Plan: project work as part of academic curriculum
10	freedom, flexibility of choosing courses
7	learn decision-making
7	develop self-reliance, competence
6	grading system
5	faculty advisors
5	good career preparation
3	good chance to become involved with outside world
2	IQP
2	good faculty/student relationships
2	spend time with varied groups of people on/off-campus
2	sufficiency requirement
1	IPI work
1	MQP
1	"students who have graduated through this program are better qualified"
1	7-week terms
1	varied program
1	good liberal engineering education
1	"makes you stop and think about what you really want out of an education; you can then proceed to get what you need from the school"
1	teaches you how to work with others
1	student goes in the direction, at the rate he chooses
1	abolition of unnecessary, useless requirements
1	less emphasis on grades, more on learning
1	application of theory to practice

Clarkson Freshmen

26	good preparation for a career
10	good education--broad undergraduate/technical/well-organized
3	hard work
3	good reputation
2	"better insight of the technique and purpose of engineering and an introduction to the practical knowledge common to most engineers"
2	good job placement
2	learn to live independently
1	good faculty/student relationships
1	develop self-reliance, well-being, cooperation

1	high rating of Clarkson by employers
1	flexibility in courses
1	technical equipment available
1	first two years offer a good background in major field
1	good faculty
1	enables student to cope with other people
1	breaking from tradition

WPI Seniors

19	incorporation of project work into academic program
8	projects give students a chance to see what life is like in the real working world; to become more aware of society; to deal with people of other disciplines
6	fosters self-reliance, experience, responsibility, character development, creativity
5	flexibility of Plan
4	competency exam--students prove their competence
3	IPI method of teaching
3	MQP
2	exchange program with Consortium of colleges
2	no course requirements outside major
2	course work
2	advising system
1	good, close student/faculty relationships
1	good preparation for graduate school
1	relating school to industry
1	video format
1	allows student to determine own pace, directions, goals
1	IQP
1	sufficiency program
1	loose structure of course selection
1	grading system

Clarkson Seniors

11	good preparation for a career
9	Clarkson's good reputation: high rate of employment for graduates
5	good student/faculty relationships
3	close-knit community
3	good education
2	ability to change/add majors--flexible program
2	programs student-oriented
1	executive in residence
1	independent study
1	diversified faculty: even within one department; allows exposure to many areas of specialization
1	good research program
1	new, effective president
1	exposure of students in one field to students in many other fields--ability to live and work together
1	good wide choice of courses
1	highly qualified faculty
1	getting a good environmental engineering program started

II. What do you feel are the most important problems or disadvantages associated with the program here?

WPI Freshmen

7	7-week terms too short
4	open admissions--too many non-motivated students
4	prefer ABC NR grading system
4	not enough women
3	lack of encouragement to work hard
3	weak humanities courses--need to be broadened
3	lack of understanding of the Plan by students
3	unhealthy social life
3	hard for grad schools/business to evaluate grades
3	getting used to "free" atmosphere--without structured work; some students take advantage not to work
2	sufficiency, humanities requirement
2	education too marrow-minded; lack of diversity of courses
2	student apathy
1	too many requirements in major field
1	little opportunity to take courses outside major field
1	faculty split over Plan
1	better, inexpensive housing needed
1	sports
1	many professors mediocre
1	better course scheduling needed
1	too much pressure

Clarkson Freshmen

8	need broader course selection: law, humanities, medicine, etc.
7	education too general; some required courses do not pertain to major field--too much humanities required
6	too much work
4	pace is fast, too fast for some
4	poor social life; too few activities
3	more lab courses, esp. for freshmen--to apply theory to practice
3	some professors are poor teachers
3	poor faculty/student relationships
2	too strict adherence to rules
1	program for freshmen too rigid, too broad: should be more specialized in various fields
1	need more tests with less material covered on each
1	too much theory
1	too expensive
1	poor housing situation
1	"good teachers leaving due to lack of financial security"
1	"courses emphasize mechanics, rather than theory"
1	"need more women"
1	poor library
1	"graduates often unable to get jobs"
1	difficult for students to change programs
1	not enough basic courses
1	program too complex
1	program not changing with the times

WPI Seniors

10	7 weeks too short: limited exposure to material, too rapid a pace for learning the material; excessive work--professors don't understand Plan system
5	grading system poor--hard for graduate schools/business to evaluate
4	poor advising system--uninformed; needs expansion; advisors need to be more available
4	competency exam--too much pressure, too late--how can one test competency
3	limited communications between faculty/students
3	"AC" hinders motivation; can get by with little work
2	need some regular courses to balance project work
2	poor social atmosphere
2	without course requirements, many students lack knowledge in major fields--must specify degree requirements
1	Intersessions are a waste of time
1	some exams test speed, not competence
1	inflexibility (projects take up 2-1/3 units, equivalent to 7 courses ?)
1	limited course selection
1	idea of sufficiency fine but misleading--need more help on creating projects
1	more could be learned in classroom than through projects
1	laxness
1	WACCC
1	should be able to graduate with knowledge in all areas
1	major courses not offered often enough
1	projects should be more relevant to eventual career
1	open admissions
1	implementing flexible Plan on fields of study which have highly structured requirements
1	courses becoming easier
1	more research money needs to be made available to attract younger, better faculty
1	inflated grades
1	"loose" quality on projects--especially the sufficiency
1	too many students working with the same few professors
1	no sense of community
1	need to develop humanities courses
1	"MQP/IQP do not provide a true industry/education interface"

Clarkson Seniors

5	not enough practical use of theory
4	students/faculty/administration apathetic: apathetic intellectual environment; uninvolved in school affairs
3	some professors are poor teachers
3	need more humanities, social sciences--well-rounded education
3	not enough lab courses
3	not enough women
2	too much emphasis on grades
2	"departments not being of the same quality"
2	hard for small school to keep up with the times, while retaining the advantages of a small school

2	"many students get too involved in engineering, relating its precision to all other facets of life"
1	course material too rigid
1	programs cover too much material
1	inflexible grading; too few tests given
1	some faculty too research-oriented
1	lack of equipment (small school)
1	no school spirit or social life
1	lack of student/faculty interaction
1	academic standards being lowered
1	traditional rigid approaches to problems imposed by small staff

III. Are there any other comments you'd like to make?

WPI Freshmen

11	very satisfied with WPI, grading system, Plan
2	some professors (especially in lower level courses) are poor teachers
1	there should be no need for basic (calculus, physics) courses--taken in high school
1	housing problems
1	10-week courses better
1	more opportunity to take courses outside major
1	Plan is confusing, can be easily misunderstood, used to cover one's failures
1	Plan not flexible enough
1	tendency toward isolating one's courses in technical studies--narrow education
1	less pressure on grades with Plan
1	"projects" emphasis exciting, opportunity to finally apply theory--good career preparation
1	difficult for girls here
1	faculty understaffed
1	career opportunities could be stressed more during freshman year
1	WPI education could be more challenging
1	latitude in degree of difficulty of competency exams unfair

Clarkson Freshmen

1	more humanities courses offered
1	admissions not selective enough
1	little motivation to work
1	poor social life
1	small school in small city is best part about Clarkson
1	should include "values" courses
1	emphasis of professors is on research rather than teaching
1	too much work without time for social/cultural life

WPI Seniors

2	lack of knowledge advising creates problems
2	WPI developed good ideas but many aspects of Plan are too extreme
2	need intensive orientation to Plan for freshmen
2	Plan is good on paper but is being poorly implemented
2	WPI not selective enough in admissions
1	only 1/3 students involved in project work, rest more concerned with requirements fulfilling
1	only 1/3 faculty involved in project work
1	prefer Pass/NR/Distinguised grading system
1	IPI format for all courses
1	heavy workload detracts from enjoyable college experience
1	unnecessary stress in determining competency--using single comprehensive exam
1	changes in faculty approach, style needed
1	give sample course plans for students to use as models for specific career objectives
1	departments understaffed
1	WPI lacks sense of community
1	need more informal seminars
1	confusing to have classes being on same day as registration
1	dual system: Plan for honors students, non-Plan for others
1	poor idea to allow students to take successive courses without passing first or preceding course
1	offer short, special interest courses during Intersession
1	no humanities sufficiency
1	senior project, rather than QP--after course work completed

Clarkson Seniors

3	excellent courses and education
2	need more social sciences, humanities courses--stimulation in different ideas, ways of thinking
1	difficult to transfer here--to make adjustments, keep up with work
1	too high a level of competition encouraged here
1	poor placement services
1	confusing when actual course offerings differ from those in catalogue
1	need to replace Dean of School of Management
1	need more work internships

QUESTIONNAIRE FORM B

BACKGROUND INFORMATION

			WPI	CCT	SIT	Total	Levels of Significance
1-3.	Your school	N =	257	188	247	692	
4.	Are you						
	1. On the Plan and basically satisfied		77.2%	--	--		
	2. On the Plan but wish you were off		9.1%	--	--		
	3. Off the Plan and basically satisfied		13.4%	--	--		
	4. Off the Plan but wish you were on		0.4%	--	--		
5.	What year are you in at your school?						
	1. Freshman		29.6%	27.7%	12.6%		
	2. Sophomore		24.9%	22.9%	21.1%		
	3. Junior		23.7%	24.5%	15.5%		
	4. Senior		21.0%	24.5%	15.0%		
	5. Other		0.8%	0.5%	35.8%		
6.	Are you						
	1. Male		94.9%	86.2%	90.7%		
	2. Female		5.1%	13.8%	9.3%		
7.	When applying to schools, was this school						
	1. Your first choice		77.6%	71.7%	76.3%		
	2. Second choice		16.4%	19.8%	15.8%		NS
	3. Third or lower choice		6.0%	8.6%	7.9%		
8.	Why did you select this school?						
	1. Course offerings		25.0%	33.1%	42.2%		
	2. Advice from high school counselors		9.5%	12.5%	8.3%		
	3. WPI Plan/special programs offered here		39.5%	7.4%	5.0%		
	4. Advice from students here		2.0%	5.2%	2.8%		
	5. Advice from alumni		3.0%	6.6%	2.8%		
	6. Parental advice		5.0%	7.4%	7.8%		
	7. Financial aid offer		12.0%	22.1%	18.3%		.01
	8. Close to home		3.0%	2.2%	12.8%		
	9. Far from home		1.0%	3.7%	--		
	10. Visit to the campus		35.5%	52.4%	24.5%		
	11. Faculty		5.4%	3.6%	3.1%		
	12. Intellectual atmosphere		17.2%	9.5%	20.4%		
	13. Other		41.9%	34.5%	52.0%		

NS = not statistically

2B

	WPI	CCT	SIT	Levels of Significance
10. What form of financial help do you receive from the school?				
1. Money	10.4%	45.7%	14.1%	
2. Money and work combination	4.4%	8.1%	12.8%	
3. Money and loan combination	32.3%	12.9%	13.6%	.001
4. Other	6.8%	5.9%	15.3%	
5. None	46.2%	27.4%	44.2%	
11. For a person in your year (e.g., freshman, junior, etc.), is your standing in terms of courses passed				
1. More than two courses behind	19.1%	2.7%	2.1%	
2. Two courses behind	6.8%	3.7%	2.9%	
3. One course behind	11.6%	5.9%	6.3%	
4. On target	31.5%	54.8%	57.1%	.001
5. One course ahead	9.2%	13.3%	11.3%	
6. Two courses ahead	6.0%	8.5%	9.2%	
7. More than two courses ahead	15.9%	11.2%	10.9%	
12. Where do you live?				
1. Dormitory	41.4%	67.9%	37.3%	
2. Fraternity or sorority	18.7%	9.1%	12.3%	
3. Off-campus apartment	20.3%	15.0%	13.5%	.001
4. With parents or relatives	11.2%	2.7%	26.2%	
5. Other	8.4%	5.4%	10.7%	
13. How far from school is your home?				
1. Within 5 miles	11.5%	4.8%	14.3%	
2. 5-15 miles	6.7%	2.1%	18.9%	
3. 15-50 miles	23.3%	5.3%	42.6%	.001
4. 50-200 miles	44.7%	28.2%	17.2%	
5. 200-500 miles	7.1%	58.0%	2.9%	
6. More than 500 miles	6.7%	1.6%	4.1%	
14. Where do you think you ranked in your high school class?				
1. Top 10%	59.7%	54.3%	54.3%	
2. Top 25%	26.1%	26.1%	28.8%	
3. Top 50%	9.1%	12.3%	10.3%	NS
4. Top 75%	2.8%	3.2%	3.7%	
5. Other	2.4%	4.3%	2.9%	

	WPI	CCT	SIT	Levels of Significance
15. If you can remember, approximately what were your S.A.T. scores?				
NOTE: Responses are means.				
15-17. Verbal S.A.T. score	550.0	557.1	557.7	NS
18-20. Math S.A.T. score	644.3	654.5	658.9	NS
21. What are you majoring in?				
(Responses not included here)				
22. What would you like to do when you finish school?				
1. Go on to graduate school	32.2%	27.8%	26.0%	
2. Work	49.8%	51.9%	55.8%	
3. Military	3.5%	2.7%	3.0%	.001
4. Undecided	13.3%	16.0%	5.1%	
5. Other	1.2%	1.6%	10.2%	

We are interested in approximately how much time you feel you spend during an average week on the following activities (the categories are not all mutually exclusive):

NOTE: Responses are means of hours spent in each activity.

	WPI	CCT	SIT	Levels of Significance
23-24. Contact with faculty in lectures or class	12.7	16.8	15.2	.001
25-26. Contact with my advisor individually	2.0	1.0	3.8	.003
27-28. Studying on my own or in IPI (Keller Plan) courses	22.4	18.6	13.2	.001
29-30. Working or studying with others	6.1	7.0	6.6	NS
31-32. Sports and hobbies	8.9	9.2	8.5	NS
33-34. Contact with faculty outside of class	1.7	1.5	3.0	.007
35-36. Earning money	5.7	3.8	18.9	.001
37-38. Recreation	16.4	17.4	14.1	NS
39-40. Sleeping	49.2	49.9	47.7	NS
41-42. Doing projects, experiments	6.8	4.0	6.9	.001
43-44. Taking exams, assessments	2.4	2.4	3.4	NS

How do you feel about each of the following educational goals?

NOTE: Responses are means. Scale used was:
1 = Not very important; 2 = Important;
3 = Very Important

	WPI	CCT	SIT	Levels of Significance
HOW IMPORTANT IS IT:				
45. To develop the skills necessary to earn a good living	2.6	2.6	2.5	NS
46. To learn how to make friends and get along with people	2.6	2.6	2.5	.008
47. To learn to think clearly and independently	2.8	2.8	2.8	NS
48. To gain an understanding of the main areas of knowledge	2.5	2.4	2.4	NS
49. To develop strengths of character and personality	2.6	2.5	2.5	NS
50. To develop physical and emotional well-being	2.5	2.5	2.4	NS
51. To develop the desire and capacity for lifelong learning	2.4	2.2	2.4	.001
52. To become an interesting individual person to yourself and others	2.4	2.3	2.3	.029
53. To develop self confidence	2.7	2.6	2.6	NS
54. To learn how to make decisions	2.7	2.6	2.7	NS
HOW IMPORTANT IS IT TO YOU TO DO THE FOLLOWING THINGS IN YOUR LIFE:				
55. To be a financial success and earn a good living	2.1	2.2	2.1	NS
56. To have a happy family life	2.7	2.7	2.7	NS
57. To be of service to others	2.3	2.2	2.2	.03
58. To develop my own interest and personality to the fullest, live in my own way	2.5	2.5	2.5	NS
59. To create or perform works of art	1.6	1.5	1.6	NS
60. To become competent and respected in my work or profession and in my community	2.4	2.3	2.4	NS
61. To change the world around me for the better	2.3	2.1	2.1	.029
HOW IMPORTANT ARE THESE REASONS FOR UNDERTAKING AN OFF-CAMPUS PROJECT TO YOU:				
62. To learn about career possibilities	2.1	2.0	2.0	NS
63. To prepare me to cope with the adult world of work	2.2	1.9	2.0	.001
64. To get a break from the restrictions of school rules and life	1.5	1.7	1.7	NS

	WPI	CCT	SIT	Levels of Significance
65. To be of service to others	1.8	1.9	1.8	NS
66. To get a break from classroom and academic requirements	1.5	1.8	1.7	.003
67. To satisfy academic requirements	1.8	1.8	1.7	NS
68. To do what my friends do	1.1	1.2	1.1	.001
69. To develop personal qualities such as increased confidence, self-reliance, and maturity	2.5	2.3	2.3	.035
70. To be free, live in a new way, do my own thing	1.8	1.9	1.9	NS
71. To learn more about other, different social groups and environments than my own	2.2	2.0	1.9	.001
72. To gain practical knowledge of a subject or field studied in school	2.6	2.3	2.5	.001
73. To have time for my own creative work	2.0	1.9	2.2	.031
DO YOU THINK THAT ANY OF THE FOLLOWING WILL BE PROBLEMS FOR YOU ON AN OFF-CAMPUS WORK JOB OR PROJECT:				
74. Your ability to master the various facets of the job, to the satisfaction of your employer	1.7	1.7	1.6	NS
75. Your ability to get along with your supervisor	1.6	1.6	1.5	NS
76. Your ability to get along with your fellow workers	1.7	1.7	1.7	NS
77. Your ability to stick it out even when the job is boring	1.8	1.8	1.9	NS
78. Your ability to meet your appointments regularly and faithfully	1.7	1.7	1.7	NS
79. How do you feel about undertaking your off-campus project or activity?				
1. Enthusiastic	43.6%	35.0%	37.4%	
2. Indifferent	17.1%	21.1%	16.5%	
3. Confident	17.5%	25.6%	28.3%	NS
4. Apprehensive	15.4%	13.9%	12.6%	
5. Other	6.4%	4.4%	5.2%	

WPI Seniors

10	7 weeks too short: limited exposure to material, too rapid a pace for learning the material; excessive work--professors don't understand Plan system
5	grading system poor--hard for graduate schools/business to evaluate
4	poor advising system--uninformed; needs expansion; advisors need to be more available
4	competency exam--too much pressure, too late--how can one test competency
3	limited communications between faculty/students
3	"AC" hinders motivation; can get by with little work
2	need some regular courses to balance project work
2	poor social atmosphere
2	without course requirements, many students lack knowledge in major fields--must specify degree requirements
1	Intersessions are a waste of time
1	some exams test speed, not competence
1	inflexibility (projects take up 2-1/3 units, equivalent to 7 courses ?)
1	limited course selection
1	idea of sufficiency fine but misleading--need more help on creating projects
1	more could be learned in classroom than through projects
1	laxness
1	WACCC
1	should be able to graduate with knowledge in all areas
1	major courses not offered often enough
1	projects should be more relevant to eventual career
1	open admissions
1	implementing flexible Plan on fields of study which have highly structured requirements
1	courses becoming easier
1	more research money needs to be made available to attract younger, better faculty
1	inflated grades
1	"loose" quality on projects--especially the sufficiency
1	too many students working with the same few professors
1	no sense of community
1	need to develop humanities courses
1	"MQP/IQP do not provide a true industry/education interface"

Clarkson Seniors

5	not enough practical use of theory
4	students/faculty/administration apathetic: apathetic intellectual environment; uninvolved in school affairs
3	some professors are poor teachers
3	need more humanities, social sciences--well-rounded education
3	not enough lab courses
3	not enough women
2	too much emphasis on grades
2	"departments not being of the same quality"
2	hard for small school to keep up with the times, while retaining the advantages of a small school

2	"many students get too involved in engineering, relating its precision to all other facets of life"
1	course material too rigid
1	programs cover too much material
1	inflexible grading; too few tests given
1	some faculty too research-oriented
1	lack of equipment (small school)
1	no school spirit or social life
1	lack of student/faculty interaction
1	academic standards being lowered
1	traditional rigid approaches to problems imposed by small staff

III. Are there any other comments you'd like to make?

WPI Freshmen

11	very satisfied with WPI, grading system, Plan
2	some professors (especially in lower level courses) are poor teachers
1	there should be no need for basic (calculus, physics) courses--taken in high school
1	housing problems
1	10-week courses better
1	more opportunity to take courses outside major
1	Plan is confusing, can be easily misunderstood, used to cover one's failures
1	Plan not flexible enough
1	tendency toward isolating one's courses in technical studies--narrow education
1	less pressure on grades with Plan
1	"projects" emphasis exciting, opportunity to finally apply theory--good career preparation
1	difficult for girls here
1	faculty understaffed
1	career opportunities could be stressed more during freshman year
1	WPI education could be more challenging
1	latitude in degree of difficulty of competency exams unfair

Clarkson Freshmen

1	more humanities courses offered
1	admissions not selective enough
1	little motivation to work
1	poor social life
1	small school in small city is best part about Clarkson
1	should include "values" courses
1	emphasis of professors is on research rather than teaching
1	too much work without time for social/cultural life

WPI Seniors

2	lack of knowledge advising creates problems
2	WPI developed good ideas but many aspects of Plan are too extreme
2	need intensive orientation to Plan for freshmen
2	Plan is good on paper but is being poorly implemented
2	WPI not selective enough in admissions
1	only 1/3 students involved in project work, rest more concerned with requirements fulfilling
1	only 1/3 faculty involved in project work
1	prefer Pass/NR/Distinguised grading system
1	IPI format for all courses
1	heavy workload detracts from enjoyable college experience
1	unnecessary stress in determining competency--using single comprehensive exam
1	changes in faculty approach, style needed
1	give sample course plans for students to use as models for specific career objectives
1	departments understaffed
1	WPI lacks sense of community
1	need more informal seminars
1	confusing to have classes being on same day as registration
1	dual system: Plan for honors students, non-Plan for others
1	poor idea to allow students to take successive courses without passing first or preceding course
1	offer short, special interest courses during Intersession
1	no humanities sufficiency
1	senior project, rather than QP--after course work completed

Clarkson Seniors

3	excellent courses and education
2	need more social sciences, humanities courses--stimulation in different ideas, ways of thinking
1	difficult to transfer here--to make adjustments, keep up with work
1	too high a level of competition encouraged here
1	poor placement services
1	confusing when actual course offerings differ from those in catalogue
1	need to replace Dean of School of Management
1	need more work internships

QUESTIONNAIRE FORM B

BACKGROUND INFORMATION

		WPI	CCT	SIT	Total
1-3. Your school	N =	257	188	247	692
4. Are you					
1. On the Plan and basically satisfied		77.2%	--	--	
2. On the Plan but wish you were off		9.1%	--	--	
3. Off the Plan and basically satisfied		13.4%	--	--	
4. Off the Plan but wish you were on		0.4%	--	--	
5. What year are you in at your school?					
1. Freshman		29.6%	27.7%	12.6%	
2. Sophomore		24.9%	22.9%	21.1%	
3. Junior		23.7%	24.5%	15.5%	
4. Senior		21.0%	24.5%	15.0%	
5. Other		0.8%	0.5%	35.8%	
6. Are you					
1. Male		94.9%	86.2%	90.7%	
2. Female		5.1%	13.8%	9.3%	Levels of Significance
7. When applying to schools, was this school					
1. Your first choice		77.6%	71.7%	76.3%	
2. Second choice		16.4%	19.8%	15.8%	NS
3. Third or lower choice		6.0%	8.6%	7.9%	
8. Why did you select this school?					
1. Course offerings		25.0%	33.1%	42.2%	
2. Advice from high school counselors		9.5%	12.5%	8.3%	
3. WPI Plan/special programs offered here		39.5%	7.4%	5.0%	
4. Advice from students here		2.0%	5.2%	2.8%	
5. Advice from alumni		3.0%	6.6%	2.8%	
6. Parental advice		5.0%	7.4%	7.8%	
7. Financial aid offer		12.0%	22.1%	18.3%	.01
8. Close to home		3.0%	2.2%	12.8%	
9. Far from home		1.0%	3.7%	--	
10. Visit to the campus		35.5%	52.4%	24.5%	
11. Faculty		5.4%	3.6%	3.1%	
12. Intellectual atmosphere		17.2%	9.5%	20.4%	
13. Other		41.9%	34.5%	52.0%	

NS = not statistically

	WPI	CCT	SIT	Levels of Significance
10. What form of financial help do you receive from the school?				.001
1. Money	10.4%	45.7%	14.1%	
2. Money and work combination	4.4%	8.1%	12.8%	
3. Money and loan combination	32.3%	12.9%	13.6%	
4. Other	6.8%	5.9%	15.3%	
5. None	46.2%	27.4%	44.2%	
11. For a person in your year (e.g., freshman, junior, etc.), is your standing in terms of courses passed				.001
1. More than two courses behind	19.1%	2.7%	2.1%	
2. Two courses behind	6.8%	3.7%	2.9%	
3. One course behind	11.6%	5.9%	6.3%	
4. On target	31.5%	54.8%	57.1%	
5. One course ahead	9.2%	13.3%	11.3%	
6. Two courses ahead	6.0%	8.5%	9.2%	
7. More than two courses ahead	15.9%	11.2%	10.9%	
12. Where do you live?				.001
1. Dormitory	41.4%	67.9%	37.3%	
2. Fraternity or sorority	18.7%	9.1%	12.3%	
3. Off-campus apartment	20.3%	15.0%	13.5%	
4. With parents or relatives	11.2%	2.7%	26.2%	
5. Other	8.4%	5.4%	10.7%	
13. How far from school is your home?				.001
1. Within 5 miles	11.5%	4.8%	14.3%	
2. 5-15 miles	6.7%	2.1%	18.9%	
3. 15-50 miles	23.3%	5.3%	42.6%	
4. 50-200 miles	44.7%	28.2%	17.2%	
5. 200-500 miles	7.1%	58.0%	2.9%	
6. More than 500 miles	6.7%	1.6%	4.1%	
14. Where do you think you ranked in your high school class?				NS
1. Top 10%	59.7%	54.3%	54.3%	
2. Top 25%	26.1%	26.1%	28.8%	
3. Top 50%	9.1%	12.3%	10.3%	
4. Top 75%	2.8%	3.2%	3.7%	
5. Other	2.4%	4.3%	2.9%	

	WPI	CCT	SIT	Levels of Significance
15. If you can remember, approximately what were your S.A.T. scores?				
NOTE: Responses are means.				
15-17. Verbal S.A.T. score	550.0	557.1	557.7	NS
18-20. Math S.A.T. score	644.3	654.5	658.9	NS
21. What are you majoring in?				
(Responses not included here)				
22. What would you like to do when you finish school?				
1. Go on to graduate school	32.2%	27.8%	26.0%	
2. Work	49.8%	51.9%	55.8%	
3. Military	3.5%	2.7%	3.0%	.001
4. Undecided	13.3%	16.0%	5.1%	
5. Other	1.2%	1.6%	10.2%	

We are interested in approximately how much time you feel you spend during an average week on the following activities (the categories are not all mutually exclusive):

NOTE: Responses are means of hours spent in each activity.

	WPI	CCT	SIT	Levels of Significance
23-24. Contact with faculty in lectures or class	12.7	16.8	15.2	.001
25-26. Contact with my advisor individually	2.0	1.0	3.8	.003
27-28. Studying on my own or in IPI (Keller Plan) courses	22.4	18.6	13.2	.001
29-30. Working or studying with others	6.1	7.0	6.6	NS
31-32. Sports and hobbies	8.9	9.2	8.5	NS
33-34. Contact with faculty outside of class	1.7	1.5	3.0	.007
35-36. Earning money	5.7	3.8	18.9	.001
37-38. Recreation	16.4	17.4	14.1	NS
39-40. Sleeping	49.2	49.9	47.7	NS
41-42. Doing projects, experiments	6.8	4.0	6.9	.001
43-44. Taking exams, assessments	2.4	2.4	3.4	NS

How do you feel about each of the following educational goals?

NOTE: Responses are means. Scale used was:
1 = Not very important; 2 = Important;
3 = Very Important

	WPI	CCT	SIT	Levels of Significance
HOW IMPORTANT IS IT:				
45. To develop the skills necessary to earn a good living	2.6	2.6	2.5	NS
46. To learn how to make friends and get along with people	2.6	2.6	2.5	.008
47. To learn to think clearly and independently	2.8	2.8	2.8	NS
48. To gain an understanding of the main areas of knowledge	2.5	2.4	2.4	NS
49. To develop strengths of character and personality	2.6	2.5	2.5	NS
50. To develop physical and emotional well-being	2.5	2.5	2.4	NS
51. To develop the desire and capacity for lifelong learning	2.4	2.2	2.4	.001
52. To become an interesting individual person to yourself and others	2.4	2.3	2.3	.029
53. To develop self confidence	2.7	2.6	2.6	NS
54. To learn how to make decisions	2.7	2.6	2.7	NS
HOW IMPORTANT IS IT TO YOU TO DO THE FOLLOWING THINGS IN YOUR LIFE:				
55. To be a financial success and earn a good living	2.1	2.2	2.1	NS
56. To have a happy family life	2.7	2.7	2.7	NS
57. To be of service to others	2.3	2.2	2.2	.03
58. To develop my own interest and personality to the fullest, live in my own way	2.5	2.5	2.5	NS
59. To create or perform works of art	1.6	1.5	1.6	NS
60. To become competent and respected in my work or profession and in my community	2.4	2.3	2.4	NS
61. To change the world around me for the better	2.3	2.1	2.1	.029
HOW IMPORTANT ARE THESE REASONS FOR UNDERTAKING AN OFF-CAMPUS PROJECT TO YOU:				
62. To learn about career possibilities	2.1	2.0	2.0	NS
63. To prepare me to cope with the adult world of work	2.2	1.9	2.0	.001
64. To get a break from the restrictions of school rules and life	1.5	1.7	1.7	NS

	WPI	CCT	SIT	Levels of Significance
65. To be of service to others	1.8	1.9	1.8	NS
66. To get a break from classroom and academic requirements	1.5	1.8	1.7	.003
67. To satisfy academic requirements	1.8	1.8	1.7	NS
68. To do what my friends do	1.1	1.2	1.1	.001
69. To develop personal qualities such as increased confidence, self-reliance, and maturity	2.5	2.3	2.3	.035
70. To be free, live in a new way, do my own thing	1.8	1.9	1.9	NS
71. To learn more about other, different social groups and environments than my own	2.2	2.0	1.9	.001
72. To gain practical knowledge of a subject or field studied in school	2.6	2.3	2.5	.001
73. To have time for my own creative work	2.0	1.9	2.2	.031
DO YOU THINK THAT ANY OF THE FOLLOWING WILL BE PROBLEMS FOR YOU ON AN OFF-CAMPUS WORK JOB OR PROJECT:				
74. Your ability to master the various facets of the job, to the satisfaction of your employer	1.7	1.7	1.6	NS
75. Your ability to get along with your supervisor	1.6	1.6	1.5	NS
76. Your ability to get along with your fellow workers	1.7	1.7	1.7	NS
77. Your ability to stick it out even when the job is boring	1.8	1.8	1.9	NS
78. Your ability to meet your appointments regularly and faithfully	1.7	1.7	1.7	NS
79. How do you feel about undertaking your off-campus project or activity?				
1. Enthusiastic	43.6%	35.0%	37.4%	
2. Indifferent	17.1%	21.1%	16.5%	
3. Confident	17.5%	25.6%	28.3%	NS
4. Apprehensive	15.4%	13.9%	12.6%	
5. Other	6.4%	4.4%	5.2%	

Rate each of the following concepts according to how you personally perceive it or feel toward it. The numbers represent a scale between the word pairs; indicate where you would put yourself on the scale by placing a circle around the appropriate number.

NOTE: Responses are means. Scale used was:
1 = Left side of pair; 9 = Right side of pair

Respond to each of the following word-pairs as you see	WPI	CCT	SIT
YOURSELF NOW			
5. Large/small	4.5	4.4	4.4
6. Slow/fast	6.3	6.2	6.5
7. Good/bad	3.1	3.4	2.9
8. Weak/strong	6.4	6.3	6.5
9. Active/passive	3.8	4.1	3.7
10. Ugly/beautiful	5.8	5.8	6.1
11. Light/heavy	4.9	5.0	5.0
12. Dull/sharp	6.7	6.5	6.8
13. Kind/cruel	3.1	3.1	3.0
14. Hard/soft	5.2	5.3	5.5
15. Deliberate/careless	3.5	3.8	3.7
16. Unpleasant/pleasant	6.7	6.5	6.9
17. Mature/immature	3.3	3.2	3.0
18. Hazy/clear	6.5	6.3	6.7
19. Valuable/worthless	3.1	3.3	2.9
YOUR IDEAL SELF			
20. Large/small	3.9	3.9	3.8
21. Slow/fast	6.6	7.4	7.6
22. Good/bad	2.0	2.2	2.1
23. Weak/strong	7.9	7.7	7.8
24. Active/passive	2.2	2.4	2.2
25. Ugly/beautiful	7.3	7.1	7.3
26. Light/heavy	4.5	4.5	4.5
27. Dull/sharp	8.1	7.8	8.0
28. Kind/cruel	2.0	2.0	2.0
29. Hard/soft	5.0	5.1	5.2
30. Deliberate/careless	2.2	2.6	2.5

	WPI	CCT	SIT
31. Unpleasant/pleasant	8.1	8.0	8.0
32. Mature/immature	1.9	1.9	1.9
33. Hazy/clear	8.2	8.0	8.3
34. Valuable/worthless	1.8	2.0	1.7
OTHER STUDENTS			
35. Large/small	4.6	4.7	4.7
36. Slow/fast	5.2	5.3	5.3
37. Good/bad	4.8	4.5	4.5
38. Weak/strong	5.1	5.2	5.4
39. Active/passive	5.2	4.8	4.8
40. Ugly/beautiful	5.0	5.1	5.3
41. Light/heavy	5.2	5.2	5.1
42. Dull/sharp	5.0	5.3	5.4
43. Kind/cruel	4.8	4.9	4.6
44. Hard/soft	4.9	4.9	4.9
45. Deliberate/careless	5.4	5.0	4.9
56. Unpleasant/pleasant	5.3	5.7	5.6
57. Mature/immature	5.3	5.1	5.0
58. Hazy/clear	4.9	5.4	5.2
59. Valuable/worthless	4.6	4.2	4.1

I. How would you solve the following problem: Pretend you were asked to devise a gasoline rationing system for all of the people at this school. What factors would you consider in making your decision? What would your program look like?

WPI Students

9	top priority for commuting staff, students
7	no discrimination (no favoritism for minorities or the affluent), i.e., equal amount of gas for all people
4	consider each person's need for driving
3	consider distance to be traveled
2	consider income/occupation
2	consider type of car
1	lowest priority for resident staff, students with vehicles
1	carpools received increased ration
1	gas allocated by WPI security
1	no coupons use student ID as credit card
1	penalize people who own/use cars that get poor mileage

1 penalize people who commute more than 20 miles per day
1 allow people to sell their gas to others
1 raise price of gas
1 advertising campaign to urge conservation of gas
1 use school vehicles only for necessities
1 consider type of driver: waster/conserver of gas
1 consider military use/public transportation
1 have everyone drive same type of car
1 priority for truckers, salesmen, military, etc.
1 priority based on necessary travels with option to bend rules if necessary
1 people without cars entitled to ½ standard ration--to be given away
1 consider severity of fuel shortage
1 more bicycles
1 rich people with big cars can buy extra gas at heavily taxed prices
1 "consider needs for work, split the rest for pleasure"
1 stamps given out on priority basis
1 second priority = $5 limit on gas for residential students

II. Pretend someone similar to yourself, but younger, asked your advise about coming to this school. What would you say? Why?

6 No: no girls, no social life
6 yes: very good school for learning: enjoyable courses, faculty, opportunities in abundance
4 suggest that they have a pretty good idea of what they want to go into; have a major in mind; person should be interested in learning, not just in getting a degree--need high motivation
2 don't be put off by "Braggarts"/"robot"/strange people here
2 must be prepared to emotional depression, high expenses; able to survive with little or no social life, work hard
1 don't be put off by seemingly impersonal faculty
1 "don't be put off by freshman classes--they are only the basics, the important material will come later
1 encourage person if a serious student
1 suggest they live at school to take advantage of all it has to offer
1 good place to learn about people/work
1 must want to come here
1 need better than average intelligence, be enthusiastic about projects
1 Plan has no problems but provides better than average education
1 would explain good/bad parts about WPI/Plan, etc.
1 consider small school environment

III. Do you have any other comments you'd like to make?

1 WPI students tend to be apathetic
1 "Plan is a great thing: the school as a community is great"
1 10-week term better
1 knowledge gained here is deeply satisfying
1 most people at WPI take life too seriously
1 some people at WPI are very strange
1 poor athletics program
1 some notice (praise) of receiving good grades would be nice
1 guaranteed housing for black students discriminates against white students

QUESTIONNAIRE FORM C

Responses

The items in this instrument cluster into 16 scales. The scores of each school on each scale are noted below where

1 = low
4 = high

The key for the items making up each scale is on the questionnaire.

NOTE: Responses are means.

Variable	WPI	CCT	SIT	F	p
Cohesiveness	2.3	2.6	2.7	43.527	≤ .001
Diversity	2.8	2.9	2.7	7.499	≤ .001
Formality	2.4	2.5	2.6	19.992	≤ .001
Speed	3.2	2.8	2.9	42.515	≤ .001
Environment	2.8	2.6	2.5	32.926	≤ .001
Friction	2.4	2.4	2.3	3.669	.02
Goal Direction	2.7	2.6	2.7		NS
Favoritism	2.1	2.2	2.1		NS
Cliqueness	2.9	2.8	2.9	4.337	.013
Satisfaction	2.4	2.4	2.3	4.136	.017
Disorganization	2.1	2.2	2.2		NS
Difficulty	3.1	3.0	3.1		NS
Apathy	2.3	2.2	2.3		NS
Democratic	2.4	2.4	2.5		NS
Competitiveness	2.6	2.7	2.8	7.406	≤ .001
N = 712	240	209	263		

Note: On some variables the variance within institutions was so small that mean differences between institutions of 0.1 were statistically significant.

FORM C

DIRECTIONS

The purpose of this questionnaire is to find out what your school environment is like. Some questions relate to "a typical class," others to the entire school. There are no right or wrong answers to any of the questions. You are asked to give your honest and frank opinions. Your replies are anonymous.

For each statement, go through the following steps:

1. Read the statement carefully.
2. Think about how well the statement describes your school.
3. Circle one of the numbers across from the statement according to the following instructions:

   If you strongly disagree with the statement, circle number 1.

   If you disagree with the statement, circle number 2.

   If you agree with the statement, circle number 3.

   If you strongly agree with the statement, circle number 4.

Please be sure to answer all the questions. Do not leave any of the questions blank.

(1-4) Your School ________________________________

(5) What year are you in at your school?	WPI	CCT	SIT
(1) ____ freshman	30.0%	33.0%	14.6%
(2) ____ sophomore	22.5%	20.1%	14.9%
(3) ____ junior	25.4%	24.4%	15.7%
(4) ____ senior	21.7%	21.5%	14.2%
(5) ____ graduate student)	0.4%	1.0%	40.6%)
(6) ____ other (What?____)			

(6) Are you			
(1) ____ male	87.9%	87.6%	89.3%
(2) ____ female	12.1%	12.4%	10.7%

	Strongly disagree	Disagree	Agree	Strongly agree
(7) Students here do favors for one another.	1	2	3	4
(8) The books and equipment students need or want are easily availble to them.	1	2	3	4
(9) There are long periods during which many classes do nothing.	1	2	3	4
(10) The school has students with many different interest.	1	2	3	4
(11) Certain students work only with their close friends.	1	2	3	4
(12) The students here enjoy their class work.	1	2	3	4
(13) Students who break the rules are penalized.	1	2	3	4
(14) There is constant bickering among class members.	1	2	3	4
(15) The better students' questions are more sympathetically answers than those of the average students.	1	2	3	4
(16) Each class usually knows exactly what it has to get done.	1	2	3	4
(17) Interests vary greatly within classes or groups.	1	2	3	4
(18) A good collection of books or magazines is available for students to use.	1	2	3	4
(19) The work here is difficult.	1	2	3	4
(20) Every student here enjoys the same privileges.	1	2	3	4
(21) Most students want their work to be better than their friends' work.	1	2	3	4
(22) The school has rules to guide its activities.	1	2	3	4
(23) Personal dissatisfaction with [illegible] school is too small to be a problem.	1	2	3	4
(24) A student has the chance to get to know most other students in his/her class.	1	2	3	4
(25) Work in class is frequently interrupted when some students have nothing to do.	1	2	3	4
(26) Students cooperate equally with all class members.	1	2	3	4

		Strongly disagree	Disagree	Agree	Strongly agree
(27)	Many students are dissatisfied with much that the class does.	1	2	3	4
(28)	The better students are granted special privileges.	1	2	3	4
(29)	The objectives of most classes are not clearly recognized.	1	2	3	4
(30)	Only the good students are given special projects.	1	2	3	4
(31)	Class decisions tend to be made by all the students.	1	2	3	4
(32)	The students would be proud to show the school to a visitor.	1	2	3	4
(33)	The pace of most classes is rushed.	1	2	3	4
(34)	Some students refuse to mix with other students.	1	2	3	4
(35)	Decisions affecting the students tend to be made democratically.	1	2	3	4
(36)	Certain students have no respect for other students.	1	2	3	4
(37)	Some groups of students work together regardless of what the rest of the class is doing.	1	2	3	4
(38)	Members of each class are personal friends.	1	2	3	4
(39)	Most classes are well organized.	1	2	3	4
(40)	Some students are interested in completely different things than other students.	1	2	3	4
(41)	Certain students have more influence on what happens in class than others.	1	2	3	4
(42)	The facilities are bright and comfortable.	1	2	3	4
(43)	Students in the same class tend to pursue different kinds of problems.	1	2	3	4
(44)	There is considerable dissatisfaction with the work the students have to do.	1	2	3	4
(45)	Failure of one class would mean little to individual members.	1	2	3	4
(46)	Many classes are disorganized.	1	2	3	4

		Strongly disagree	Disagree	Agree	Strongly agree
(47)	Students compete to see who can do the best work.	1	2	3	4
(48)	Certain students impose their wishes on the rest.	1	2	3	4
(49)	A few of the class members always try to do better than the others.	1	2	3	4
(50)	There are tensions among certain groups of students that tend to interfere with class activities.	1	2	3	4
(51)	Classes are well-organized and efficient.	1	2	3	4
(52)	Students are constantly challenged.	1	2	3	4
(53)	Students feel left out unless they compete with their classmates.	1	2	3	4
(54)	Students are asked to follow strict rules.	1	2	3	4
(55)	The class is controlled by the actions of a few members who are favored.	1	2	3	4
(56)	Students don't care about the future of the school as a whole.	1	2	3	4
(57)	Each member of the school has as much influence as any other member.	1	2	3	4
(58)	The members look forward to coming to class meetings.	1	2	3	4
(59)	The subjects studied require no particular apptitude on the part of the students.	1	2	3	4
(60)	Members of most classes don't care what the class does.	1	2	3	4
(61)	There are displays around most rooms.	1	2	3	4
(62)	All students know each other very well.	1	2	3	4
(63)	Classrooms are too crowded.	1	2	3	4
(64)	Students are not in close enough contact to develop likes or dislikes for one another.	1	2	3	4
(65)	The class is rather informal and few rules are imposed.	1	2	3	4
(66)	Students have little idea of what the class is attempting to accomplish.	1	2	3	4

		Strongly disagree	Disagree	Agree	Strongly agree
(67)	There is a recognized right and wrong way of going about class activities.	1	2	3	4
(68)	What a class does is usually determined by all the students.	1	2	3	4
(69)	After most classes, the students have a sense of satisfaction.	1	2	3	4
(70)	Most students cooperate rather than compete with one another.	1	2	3	4
(71)	The objectives of your classes are specific.	1	2	3	4
(72)	Students in most classes tend to find the work hard to do.	1	2	3	4
(73)	Each student knows the goals of the course.	1	2	3	4
(74)	All classroom procedures are well-established.	1	2	3	4
(75)	Certain students in most classes are responsible for petty quarrels.	1	2	3	4
(76)	Many class members are confused by what goes on in class.	1	2	3	4
(77)	Classes are made up of individuals who do not know each other well.	1	2	3	4
(78)	Classes divide their efforts among several purposes.	1	2	3	4
(79)	Classes have plenty of time to cover the prescribed amount of work.				
(80=1)					
(1-4 = ident)					
(5)	Students who have past histories of being discipline problems are discriminated against.	1	2	3	4
(6)	Students do not have to hurry to finish their work.	1	2	3	4

		Strongly disagree	Disagree	Agree	Strongly agree
(7)	Certain groups of friends tend to sit together.	1	2	3	4
(8)	There is much competition in our classes.	1	2	3	4
(9)	The subject presentation is too elementary for many students.	1	2	3	4
(10)	Students are well-satisfied with the work of the class.	1	2	3	4
(11)	A few members of the class have much greater influence than the other members.	1	2	3	4
(12)	There is a set of rules for the students to follow.	1	2	3	4
(13)	Certain students don't like other students.	1	2	3	4
(14)	The class realizes exactly how much work it has to do.	1	2	3	4
(15)	Students share a common concern for the success of the class.	1	2	3	4
(16)	There is little time for day-dreaming.	1	2	3	4
(17)	The class is working toward many different goals.	1	2	3	4
(18)	The class members feel rushed to finish their work.	1	2	3	4
(19)	Certain students are considered uncooperative.	1	2	3	4
(20)	Most students sincerely want the class to be a success.	1	2	3	4
(21)	There is enough room for both individual and group work.	1	2	3	4
(22)	Each student knows most of the other members of his or her classes by their first names.	1	2	3	4
(23)	Failure of every member of a class would mean nothing to most members.	1	2	3	4
(24)	Most classes have difficulty keeping up with their assigned work.	1	2	3	4
(25)	There is a great deal of confusion during most class meetings.	1	2	3	4
(26)	Different students vary a great deal regarding which aspect of their classes they are interested in.	1	2	3	4

		Strongly disagree	Disagree	Agree	Strongly agree
(27)	Each student in a class has a clear idea of the class goals.	1	2	3	4
(28)	Most students cooperate equally with other class members.	1	2	3	4
(29)	Certain students are favored more than the rest.	1	2	3	4
(30)	Students have a great concern for the progress of the class.	1	2	3	4
(31)	Certain students stick together in small groups.	1	2	3	4
(32)	Most students consider the subject-matter here easy.	1	2	3	4
(33)	The course material is covered quickly.	1	2	3	4
(34)	There is an undercurrent of feeling among students that tends to pull the classes apart.	1	2	3	4
(35)	Many students in the school would have difficulty doing the advanced work of upper classes.	1	2	3	4
(36)	Students seldom compete with one another.	1	2	3	4

APPENDIX D

STUDENT INTERVIEW CATEGORIZED RESULTS

1. WPI - September 1973
2. WPI - November 1973
3. WPI - April 1974
4. WPI - November 1974
5. WPI - February 1975
6. CCT - November 1973
7. CCT - October 1974
8. CCT - April 1974
9. CCT - January 1975
10. SIT - March 1975

Interview Results

Worcester Polytechnic Institute - September 1973

How did you hear of WPI?

7	friends
4	guidance counselor
3	director of WPI admissions visited high school
3	family
2	visit to WPI campus
1	teacher
1	high school chemistry department

Why did you decide to attend WPI?

5	the Plan
2	close to home
1	good reputation
1	financial aid
1	Consortium

Did you know about the Plan when applying?

16	yes

How important was the Plan in your decision to come here?

6	not much difference; would have come anyway
3	only reason for attending
3	large effect on decision
3	would not have come without the Plan

Do you think negotiated admissions is a good idea?

6	yes

Describe the Plan; what it means to you.

6	free course selection
4	no required courses
3	student has more freedom to pursue own education; to suit own goals
3	IPI or lectures
3	short terms
1	concentrate on learning things, not on grades
1	learn self-motivation
1	better relationship with teachers
1	able to concentrate on one area
1	have more control over studies
1	responsibility on student

Which aspects of the Plan benefit you the most?

6	independence in selecting courses; educate myself
2	no required courses
2	practical education included; preparation for life
2	IPI
2	qualifying projects
1	selection of courses available

1	extra help from teachers
1	follow interests in different areas
1	3 courses per term--get more out of each one

Problems?

3	how to do project; making contact with people especially
1	with Plan: sinking to the average
1	seems necessary to spend all time studying
1	English history
1	electrical engineering a difficult field
1	need advising in selecting humanities courses

Outstanding experience thus far?

2	adjusting to dorm
2	none
2	friendly atmosphere--students, professors, etc.
1	being at college
1	ROTC
1	calculus IPI
1	placed in higher level course
1	working on a computer
1	good teachers--willing to go out of their way to help students

Personal effects of living here for four years?

4	good education
2	enjoy years here
1	more competent engineer
1	better social experience than living at home
1	more outgoing
1	become well-rounded
1	learn a lot about people
1	self-motivation
1	practical education
1	independence

How do you feel about faculty?

4	they're all great
3	working hard to make Plan work
3	good teachers
3	good interaction between students/faculty; they are very helpful
2	they make themselves available

What do you think of the advising system?

10	helpful
3	don't know yet
1	not too helpful

What kind of relationship do you want to have with advisor?

6	set up own appointments

Should the advising be personal as well as academic?

6	yes
3	no

How will you have to behave here to succeed?

6	serious about work: studies come first
2	careful not to fall behind in work
1	self-motivated
1	normal way I always act
1	interested in learning

Have you done independent work before?

7	yes
4	limited
4	no

Were you supervised by a teacher?

3	helped with problems only
2	closely

How much time are you spending on work?

5	3-4 hours per day
4	5-6 hours per day
1	2 hours per day
1	9 hours per day
1	40-50 hours per week
1	20 hours per week

Outside interests?

2	sports (unspecified)
2	tennis
2	crew
1	reading
1	photography
1	science fiction
1	basketball
1	sailing
1	swimming
1	Outing Club
1	bowling team
1	food
1	cars
1	partying
1	meeting people

Do you have much contact with upperclassmen?

9	limited (fraternity rush, RA, some dorms integrated)
2	yes

Do you feel flooded with information from WPI or do you have enough?

7	enough
3	felt flooded in beginning of year
2	not flooded
1	didn't explain everything as well as they should have

What do you think of the grading system?

10	good
1	competing only against yourself

Do you feel the grading system stimulates as much/more/less than grades?

3	not important; don't worry about grades
2	more
1	helps students get what they want out of the course
1	personal achievement

How is your roommate situation?

11	good

How is your friend situation?

9	good; getting to know dorm people primarily

Experience in high school you hope to continue in college?

1	joy of learning
1	good relationship with teachers
1	being able to graduate
1	make good friends

Feelings of upperclassmen about WPI or Plan?

8	they like Plan
4	they don't like Plan

WPI teachers compared to high school teachers?

7	WPI teachers very good
4	WPI teachers go through material very fast
2	WPI teachers expect more of you
1	WPI teachers more outgoing; more qualified

Have you changed/are you going to change this year?

3	no
3	yes; adjusting to new life; homework done sooner, for example
3	yes; gain self-confidence
3	yes; become more independent, self-reliant
1	yes; become more responsible
1	yes; gain decision-making ability

What do you think of the sufficiency requirement?

4	started it already
3	good; broader knowledge
3	haven't thought about it yet

When will you finish it?

2	later--junior year
2	as soon as possible--sophomore year
1	don't know
1	junior or senior year

Could you evaluate a teacher/student/yourself at the end of a course?

teacher	9	yes
student	6	yes
	3	no
self	8	yes
	1	maybe

By coming to WPI, the Plan, etc., will you graduate different than if you had gone to another engineering school?

12 yes: project work builds confidence; apply theory to practice, more respect for both sides of things; more education; better understanding of self; happier; more responsible; more concerned; Plan helps one to be more competent in a certain area within a field; (2) extra knowledge; (2) more satisfied because planned own education for four years

Should humanities courses be graded the same as other courses?

10	yes

Should more courses be added/should there be more freedom in course selection?

8	no, plenty offered already
3	yes, there should be more variety in humanities offerings

Would you take more than the minimum in humanities courses?

5	yes
5	no

Interview Results

Worcester Polytechnic Institute - November 1973

How did you hear of WPI?

5	father
4	catalogues
1	alumnus
1	took courses here during high school
1	campus visit
1	admissions people visited high school

Why are you here?

3	interview on campus
2	campus/people here
2	close to home
1	Plan
1	small school

Are you on the Plan?

11	yes

What do you think of the current length of the term?

4	7-week term good
4	14-week term good
2	10-week term good
2	8-week term good

To whom would you refer a friend who had problems?

4	Dean van Alstyne (academic advising)
4	Roy Astley
2	work it out among close friends
2	residential advisor
2	don't know
1	Dean Trask
1	Amy Schnetter

When you finish here, what do you think people will think you can do?

5	competent in major field
3	need more education (grad school)
2	individual who can solve problems
2	not much
1	specialized work studied here
1	"All I have to do is be a girl"
1	general knowledge

Job satisfactions?

3	interesting, enjoyable work
2	adequate income
2	research/theoretical work
1	sense of cooperative effort
1	generating new knowledge in specialized field
1	to become (a woman) registered professional engineer
1	nice environment
1	congenial co-workers
1	own business combining scientific interests
1	environmental work
1	competent in job
1	teaching-medical work
1	challenge
1	become a good teacher
1	position with unlimited potential

Life satisfactions?

4	good, satisfying work
4	marriage, children, "full life"
2	friends
2	financial security
2	to do something worthwhile/make a contribution/affect people
2	become a recognized authority in field
1	acceptance by society
1	independence
1	live in a good environment
1	time to be outdoors
1	"being able to apply what I've learned"
1	active member of the community

Parent read how many/which books, magazines?

books	6 per month	
	9 per month	
	4-15 per month	
	2 per month	
magazines	6-7 per month	
	3-5 per month	
	1	very few
	3	many

4	Time
4	Good Housekeeping
4	professional
4	Newsweek
4	National Geographic
4	Readers Digest
2	Better Homes & Gardens
2	sports
2	women's magazines
2	US News & World Report

1	Fortune
1	hobbies
1	national politics
1	business magazine
1	Atlas
1	Intellectual Digest
1	Ms.
1	Science
1	East-West Journal
1	National Reporter
1	Psychology Today
1	Yankee
1	Field & Stream
1	Popular Science
1	Consumer Reports

After graduation, what magazines will you subscribe to?

3	Time
2	Newsweek
2	technical
1	women's
1	civil engineering
1	architecture
1	QST
1	Analog
1	If
1	science fiction
1	Scientific American
1	National Observer
1	Popular Science
1	don't know
1	Yankee
1	Readers Digest
1	Saturday Review
1	TV Guide
1	WPI Journal

Do you read other than for courses?

10	yes
1	no

3	science fiction
2	Time
1	fiction
1	additional books related to course material
1	psychology
1	drama
1	oceanography
1	cars
1	mechanics
1	Newsweek
1	computer
1	math
1	physics

1	war novels
1	technical
1	history
1	The Stranger
1	Death at an Early Age
1	Buckminster Fuller
1	Lord of the Rings

How many extra-curricular activities are you involved in?

1	Radio Club
1	computer languages
1	fraternity
1	reading
1	bicycling
1	parties

Do you read the school newspaper?

10	yes
1	sometimes

If you had two weeks in which you could only read, what would you read?

5	science fiction
1	American literature
1	romance
1	detective
1	psychology
1	history
1	non-fiction
1	science philosophy
1	Buckminster Fuller
1	English semantics
1	Tolkien
1	astronomy
1	anthologies
1	technical books
1	novels
1	classics
1	The Exorcist
1	I'm OK, You're OK
1	Inside the Third Reich
1	Rise & Fall of the Third Reich
1	Center of the Cyclone
1	The Defense Never Rests
1	The Last Dangerous Vision

Do you like music?

9	yes

What kinds?

6	classical
5	rock
4	all kinds
3	folk
1	opera
1	blues
1	jazz
1	country and western
1	contemporary--easy listening

Do you collect records/tapes?

6	yes
5	no

What are your favorites?

2	classical
1	Beethoven
1	Bach
1	Dvorak
1	von Williams
1	Stravinsky
1	Schubert
1	blues
1	Jethro Tull

How many records do you have; how often do you listen to your favorites?

3	few
1	60-70
1	40-50
1	24

3	often
1	everyday

How are you different from the typical student here?

5	not different
3	rather work than be in school
2	more rounded
1	female
1	commuter
1	not out to find a husband
1	more experienced
1	open-minded about choosing field of study
1	more flexible--humanities or science
1	strong interest in classical music
1	fraternity member
1	do not enjoy studying

Do you receive preferential treatment?

7	no
5	yes: girls treated better, administration more interested in their welfare (3); keys with access to labs; good recommendations help for graduate school

Are you discriminated against?

9	no
1	yes

What do you like most about WPI?

3	good courses
3	own choice of courses
2	enjoy being here
2	enjoy being away from home
1	small school
1	project work
1	teachers are helpful
1	Intersession
1	ratio of men to women
1	population with common scientific interest
1	competency of professors
1	free to experiment with different fields
1	lack of required courses
1	good social life
1	atmosphere of school

What do you dislike about WPI?

4	7-week terms
2	Worcester (its location)
2	lack of adequate student facilities
2	too much work/studying required
1	Life Sciences has no facilities
1	few teachers
1	de-emphasis on athletics
1	not enough music courses
1	poor social atmosphere
1	not enough girls
1	"lack of cooperation between parts of the school"

Is your education preparing you for responsibility/leadership?

6	no
6	yes major field; ROTC
1	don't know

Would you like to go on to graduate school?

2	not sure
1	don't know
1	yes
1	nuclear engineering
1	Ph.D. in computer design
1	physics
1	extra degree in music
1	M.A. in forestry
1	medical school

At age 40, what do you hope to be earning?

3	not important
3	$20,000
2	$40,000
2	$15-20,000
1	don't know
1	$60,000
1	adequate

At age 40, how many people do you hope to be supervising?

2	don't know
2	working together
1	group practice
1	5 maximum
1	5-15
1	none
1	30

At age 40, what size organization do you hope to be working for?

6	small (under 100)
2	moderate (up to 500)
1	don't know
1	state-federal government

How would you go about deciding/building a nuclear reactor in a community?

7	check environmental effects
5	check reactions of people who live/work nearby
3	check with professionals in field, use them as advisors
2	check economic/physical feasibility
2	check long-term effects on people, environment
1	check purpose of nuclear reactor: research or energy?
1	check regulations
1	need adequate geologic data
1	need technical data--AEC reports
1	safety factors
1	parking

What was the last joke you heard?

6	no response
1	from Playboy
1	bathroom humor
1	"no homework tonight"

Activities in community where you will live?

2	public schools
1	work with children
1	church
1	Boy Scouts
1	Civil Air Patrol
1	community issues
1	sports car activities
1	bicycling
1	amateur radio
1	dog club
1	science fiction society
1	explorer's club
1	Board of Education
1	Chamber of Commerce
1	city government
1	Girl Scouts

How many faculty do you drop in on/how often?

4	most professors
2	1
2	3-4
1	none
1	3
1	4
1	80%
1	10

3	1-2 per month
2	16 times per month
2	often
1	2-3 times per month
1	6 times per month
1	3-4 times per month

How many faculty do you know outside school?

6	none
2	1
1	3
1	2
1	10-12
1	many

How many extracurricular activities are you involved in?

4	fraternity
3	work
2	football
2	scuba diving club
2	radio club
2	partying
2	outing club
2	faculty/trustee committees
1	wrestling
1	work around the house
1	lacrosse
1	skiing
1	building a house
1	Civil Air Patrol
1	folk music club
1	ROTC
1	pool
1	class activities
1	dorm activities
1	Resident Advisor
1	financial aid committee
1	bicyling
1	reading
1	computers
1	choir
1	musical instrument
1	none
1	fencing club
1	Christian Bible Fellowship
1	Boy Scouts
1	student government
1	campus committees

What is the dating situation like?

4	don't know
3	poor
3	good
1	mediocre

Penicillin to battle wounded or VD?

5	battle wounded
1	whoever needed it
1	don't know

Interview Results

Worcester Polytechnic Institute - April 1974

How did you hear of WPI?

3	high school guidance counselor
2	father
2	lived nearby all life
1	catalogue
1	brother
1	cousin on faculty
1	friend

Why are you here?

2	choice of courses--the Plan
1	emphasis on developing competence in major field
1	financial aid
1	project--apply theory to practice

Are you on the Plan?

8	yes
2	no

Why?

2	most freshmen on it
1	WPI propaganda about Plan
1	rather concentrate in areas of interest to get better background
1	more flexibility in choosing own courses
1	pass/fail grades better

(not on Plan: "I like the idea of seeing exactly what I do as far as marks go.")

Planning Day--what did you expect?

3	direct contact with professors
2	get gripes off chest
2	didn't know what to expect
1	exchange with other Plan students
1	nothing new
1	define more clearly what Plan is
1	suggest changes
1	hoped for discussion of advising system
1	cross-section of students to interact with faculty

What happened?

6	good student/faculty interaction
1	good discussion of teachers' philosophy of Plan vs. students'
1	greater awareness of problems of students
1	hope for continued interaction
1	van Alstyne especially concerned with implementing positive changes suggested
1	discussed advising system but no conclusions drawn
1	problems with Plan became obvious--many WPI people not "right kind of person" for Plan

What are the most important goals/objectives of the Plan?

4	self-reliance
3	how to work with other people
3	produce people who are competent in their field
2	use theory in practice
2	self-confidence
2	to develop a creative engineer--more flexible
2	ready for new experiences
1	problem-solving
1	well-rounded education
1	independent--self-sufficient people
1	own course of study
1	no grades
1	getting involved with people

Goals of WPI Plan/students' goals being reached?

3	hard to say as freshmen
2	IPI especially teaches self-confidence
1	learn how to attack problems independently and in groups
1	really learn material, accomplish something
1	should attempt to integrate humanities into sciences better
1	not many creative students at WPI
1	on the surface, it appears that the structure has changed, but it really hasn't (teachers haven't changed much, lecture system still remains strong, etc.)

WPI's environment stimulated motivation?

yes: if there is a problem it is with the students
professor's attitude helps students enjoy work

What do you think of project requirement?

6	good (learn more because you work in a field you're interested in)

How do you feel about projects as a learning experience?

3	learn how to apply theory to practice in world outside college
2	valuable
2	learn to work with other people
1	plan your own goals, set your own limits
1	learn self-confidence
1	learn to be aware of problems, how to solve them

What do you think of the sufficiency requirement?

3	good idea
2	don't know much about it
1	WPI does not have a good enough humanities department
1	non-technical courses poor, because they are taught like technical courses
1	quality-quantity of courses offered need to be improved
1	not enough variation in courses offered
1	need to be integrated with technical science courses

Courses on other campuses available?

Problems: they have 14-week terms
mechanics of transportation
only allowed in courses if places not filled by college's own students

Relationship with advisors?

2	have had difficult time finding one I could be at ease with
2	not helpful
2	spend very little time
2	good relationship with advisor
1	helpful
1	second advisor good

Relationship with faculty/administration?

4	limited contact with faculty
3	friends with some faculty/administration members
2	social and advisory relationship with Dean van Alstyne/Dean Trask
1	no contact with administration

Relationship with other students?

4	good
2	few good, close friends
1	tolerant of different people
1	friendly people
1	age groups stick together due to housing arrangements

Do you get more from WPI if you're in engineering than any other field?

9	yes

Problems?

2	learning to make efficient use of time
2	logistics of scheduling
1	new dorm made exorbitant use of funds
1	as a woman it is hard to get to know people on predominantly male campus
1	depression--miss family
1	at first, not getting total picture of WPI and all it has to offer

Satisfactions?

1	learning about college life
1	developing academically/personally
1	passing courses
1	making friends
1	involvement in fraternity
1	learning to get along with people
1	succeeding in courses
1	working in Washington at new project center
1	taking part in activities outside engineering
1	working on play "The Lion in Winter"

If you could change program, what would you do?

3	10-week term
3	improve advising system
2	change sufficiency requirement--just take humanities courses without requirement
1	hire new faculty
1	smaller classes--more personal contact with professors
1	professors get more involved with the Plan
1	limiting courses to 3 per term maximum
1	re-institute failing grade instead of No Record

When you finish here, what do you think people will think you're capable of doing?

6	competent in major field of study
3	don't know
1	how to handle myself with people
1	intelligent, know how to tackle real problems

How are you different from the typical WPI student?

8	not so different from "typical" student (is there a typical student?)
1	not as apathetic
1	more interested in humanities
1	computer engineering secondary to photography as a career

What outside activities are you involved in?

3	none
3	class committees
3	intramural sports
2	Boy Scouts
1	thinking
1	photography
1	varsity fencing team
1	cheerleading
1	fraternity
1	newspaper
1	student government
1	dorm committee
1	play
1	yearbook
1	piano
1	glee club
1	choir

How well has the Plan worked?

6	generally, working well
3	worked well for a few people
1	not working well yet
1	problems with length of them, details of program

Advice to prospective students?

2	recommend WPI
2	take more math in high school
1	need self-direction
1	depends on individual student
1	know what his capabilities are--ready to put time and energy necessary into much studying
1	which courses to take
1	which professors to speak to
1	check into larger university first--better cross-section of people, more diversified social life

What are your plans when you finish WPI?

2	job already lined up with a company
2	get a job which requires skills I have developed
1	teach
1	research and development for Navy

Do you get preferential treatment?

3	no

Are you discriminated against?

3	no

Life satisfactions?

2	help other people
1	ability to adequately provide for a family
1	respected in field
1	marriage--to be loved

Job satisfactions?

1	enjoyable work
1	challenging work
1	adequate salary

Interview Results

Worcester Polytechnic Institute - November 1974

How did you hear of WPI?

5	friends
3	high school guidance counselor
3	WPI admissions person visited high school
2	relative (alumni)
2	parents
2	father (alumni)
1	WPI brochures
1	football coach
1	interview at WPI
1	live nearby
1	college catalogue

Why did you decide to attend WPI?

7	Plan
3	good reputation
2	close to home
1	strictly engineering
1	accepted early decision
1	rejected from first choice school

What do you think of negotiated admissions?

6	against it: "a lot of kids get in who shouldn't"
5	good idea: "certain people . . . don't show the ability to do college work in high school or on SAT's"
4	good--no admissions deadline; if student is serious about further schooling, if expectations of school are made known to student, put the burden on the student--where it ought to be
2	problems with it--possibility of lower quality students
1	not a good idea: "seems like they're just trying to get kids in here for their money"
1	too little information/feedback on student's chance of success

Did you know about the Plan before you arrived here?

6	interview before coming so knew a lot
4	different grading system
4	new academic program
3	limited, only from WPI literature
2	visited, friend described details
2	very little
1	choice of courses
1	"trying to make engineers more aware of human needs"

How did you feel the Plan would affect you?

5	"it seemed to fit in with the way I like to do things"
2	develop self-motivation
2	choose own courses
1	relieve pressure of grades
1	eliminate competition
1	"if you can relate to your society, you'll be a better engineer"
1	didn't think about it

Biggest problems for students?

6	not enough girls
3	7-week term too short for some courses
2	changeover from traditional education to the Plan, especially when teachers openly opposed to it
2	little constructive to do with leisure time
1	poor housing situation
1	food prices high
1	people here--limited, no concept of outside world
1	Plan grading system
1	poor sports program
1	financial aid problems

Faculty/administration problems?

2	hard to make changeover from traditional education to Plan
2	7-week terms too crammed/pressured
2	some professors, especially department heads, impersonal, remote
1	some professors work against Plan--bad attitude
1	some professors are poor teachers
1	faculty/administration overworked
1	faculty needs to update course content to meet present world needs

Pass/no record grading system?

11	takes some pressure off grades
2	"if you understand the material, you pass"
2	prefer traditional grading system
1	prefer pass/fail
1	prefer grades/no record
1	"I think its fine. It makes me measure myself by my own criteria rather than somebody else's"
1	lack of grades could hurt job/graduate school applications

Pass/no record system effect way you work or what you get out of a course?

8	work harder in enjoyable courses, with Distinction possibilities
5	no: work hard in all courses want to pass; put as much effort in as I can--grades not important
4	system not always successful; encourages some students to settle for Acceptable--without working harder for Distinction
2	Acceptable too broad; Distinction too narrow; problem with professors setting different, more or less difficult criteria for Distinction

Faculty/student relationship?

12	"some faculty are friends; some I've never gotten to know"
10	faculty are generally available; willing to spend a lot of time with students
5	good: "faculty try hard to do a good job"
3	faculty not as available as they could be
3	bad: some faculty remote, poor teachers, difficulty realting to students
1	"faculty really care, they're a lot closer than you think"
1	can be good if faculty, students go out of their ways

Advising system?

11	unhelpful; not well enough informed
6	helpful; advice on courses, schedule
3	generally available
3	often unavailable
3	some good, some bad
2	helps relationship to see advisor often
2	advisors trying hard to have a good relationship with students; often students choose not to respond
1	poor communications between advisor and student

Improve advising system?

1	improve availability of advisors
1	provide better-informed advisors
1	provide advisors from student's major department
1	students should spend more time with advisors, establish relationship
1	advisors on a volunteer basis, who want to do a good job

Course load?

12	3 courses good
4	2 courses better
1	4 courses better
1	4 courses easy to handle some terms

Length of term?

10	7 weeks good
8	10 weeks better
3	7 weeks too short
3	more flexibility: some courses 7 weeks, others 10 weeks, others 14 weeks
2	14 weeks better

Student government effective?

11	no; no real power (prefer to go directly to deans, if problems occur)

Cheating a problem?

8	not worse than any other school
5	yes
4	don't know--no contact with it
3	no
2	yes, especially take-home exams

Marijuana a problem?

8	widespread, but not a problem
8	no
1	yes

Alcohol a problem?

5	widespread, but not a problem
5	no
5	yes

Value of IQP project?

15	good; "gets you into a real life situation"; applying theory to practice; learn something not provided in traditional curriculum; "I saw something, learned a lot about people I would never have seen or learned about otherwise--I learned a lot about living"
6	learned a lot about government agencies, problems, Washington D.C.
1	project, information gained from it were valuable
1	good, individual, non-competitive knowledge for sake of knowledge

Sufficiency requirement?

4	good; diversion from technical work; delve into humanities; ties technology to mankind
4	did not enjoy it: should be offered but not required; uninteresting--takes up too much time
1	encouraged more well-rounded people
1	not flexible enough
1	currently a waste of time
1	improve humanities department--currently gut courses only
1	"gained perspectives, insights I would not have gained elsewhere"

Examples:	5	English
	4	music
	4	history
	1	philosophy
	1	French

Competency exam as evaluation of student's work?

13	good evaluation: better indication of how well I've done in major field than grades
6	usually requires a lot of work
6	not a good evaluation--one test for 3½-4 years of study does not seem fair; too much importance placed on it
3	better evaluated by professor student has been working with
2	not hard
2	question validity of oral part: (supposedly tests understanding of logic, jargon) "if you know where to go to find information, that's just as good as knowing it"
1	especially hard if you don't work well under pressure
1	should include written evaluation from at least one of student's professors
1	concentration should be on student's major field
1	final evaluation by all student's major professors would be better
1	only limited evaluation of certain areas--not all material studied
1	better to learn way of thinking rather than memorization of facts

Additional things school should offer:

7	more girls
6	psychology courses
5	better social life
2	expand biology department
2	architecture
2	expand varsity sports program
2	logic courses
1	entomology
1	psychiatric services
1	transportation courses
1	philosophy
1	law
1	anthropology
1	soils engineering

Gained most from WPI?

6	good job
6	good education
3	knowledge in major field
1	"learned to do something"
1	self-discipline
1	knowledge
1	personal maturity, growth
1	initiative
1	opportunity to become a well-rounded person
1	"realized that engineering is only one aspect of solving a problem"
1	individual/technological development
1	professional ability
1	getting to know different people
1	to make friends
1	flexibility
1	the degree

Interview Results

Worcester Polytechnic Institute - February 1975

How did you hear of WPI?

7	friends
6	relatives (students at WPI)
6	catalogues
4	high school guidance counselor
4	live nearby
2	parents
1	interview at WPI
1	teachers
1	football coach
1	high school placement office

Why did you come to WPI?

11	Plan
3	small school
2	good reputation
2	good computer science department
1	near home
1	scholarship
1	Eastern school
1	low tuition

What know about Plan before arriving?

6	project work
6	very little
5	nothing
3	no required courses
3	7-week terms
3	theory behind it
2	grading system
2	requirements to graduate
2	as described in catalogue
1	IPI courses
1	advisors

Feelings on negotiated admissions?

11	not so good--level of standards going down
8	good idea--people must work hard
7	good idea--another way of admitting people
2	sounds good theoretically
2	way for WPI to make more money

Biggest problems at school?

6	Plan grading system
4	lack of social life; no girls, lack of extra-curricular activities
3	shallow education: 7-week terms no long enough
3	sufficiency eliminated or courses improved
1	student apathy
1	campus communications
1	housing
1	hard to get together with advisor
1	organizing class schedules
1	competency exam
1	projects
1	Plan hard to evaluate for jobs/graduate school

Course load?

21	3 courses good
1	4 courses manageable
1	3 courses OK to get Acceptable, but 2 better to get Acceptable with Distinction

Length of term?

13	7-weeks good
4	longer than 7, less than 14
3	14 weeks for certain courses
2	14 weeks
1	10 weeks
1	more time/credit for upper level courses

Faculty/student relationships?

12	faculty available
9	good; open communication
8	faculty helpful with student problems
4	varies with each professor
3	close friendly relations: "get to know a lot of teachers fairly well"

Advising system?

10	good, helpful
4	teachers no always available; often to busy to spend enough time with students
4	faculty not well enough informed
4	poor, not helpful, no advice
3	not so good: professor-student incompatible poor communications between faculty/student professor outside major department

Changes in advising system?

2	improve advisor/advisee communications
2	faculty need more information about courses outside their department
1	hire more women professors/advisors
1	hire special faculty to work as advisors
1	get advisors in major departments only
1	see advisors more often
1	advise freshmen to start sufficiency immediately

Pass/no record grading system?

12	good: put a lot of work into certain courses, less time into others
5	prefer traditional grading system
4	sometimes; not for everybody--[illegible] advantage of "Acceptable" system not to learn; no pressure to do well
1	equally as good as traditional system
1	disappointing to get "high Acceptable," missing "Distinction"--looks same as low "Acceptable"

Pass/no record system affects how hard you work?

7	work equally as hard in all courses--motivation is to become competent
5	work hard in important courses, less in others
5	tempted to let slide Acceptable (with no possibility of Distinction) courses
4	work equally hard in all courses until fifth week, then work only in courses in which it is possible to get Distinction
1	study to learn, less pressure

Faculty-administration problems?

6	faculty divided pro-con about 7-week courses
2	how to develop, use Plan; adjustment to Plan course load, term length, etc., IPI format
1	faculty: project load
1	registration poorly run
1	some courses poorly taught
1	grading Acceptable/Distinction
1	faculty and administration: communication with students
1	disagreement over "competency"

Cheating a problem?

11	"There are people who cheat. I think its their problem."
11	not much
4	haven't come in contact with it
2	a problem in freshman level courses

Marijuana a problem?

19	around but no a problem
2	no

Alcohol a problem?

7	around but not a problem
4	yes
2	no

Projects?

1	not going well due to poor planning
1	good idea
1	not working due to school's lack of interest, support
1	IQP a joke--do as little work as possible
1	IQP good/bad--depends on what you choose to be involved with
1	MQP can be valuable--something in your own field you're interested in

Value of projects?

15	gain experience by applying theory
6	learned a lot of things didn't learn in class
2	do interesting work with school's help rather than outside, on my own
1	strengthens background in own field
1	helps to become more aware of what's going on in field, world . . .

Sufficiency requirement?

7	wider range of learning; "good to have background in area other than your own"
6	good idea, enjoyable
3	waste of time
2	shouldn't have to concentrate on one area only; should have variety of humanities courses available
1	"cramming humanities courses down your throat is not going to make you a humane engineer"
1	too much extra work
1	enjoyable--reading books wouldn't otherwise have chance to read
1	"important because you can keep human side of studies"

Value of competency exam?

9	good form of evaluation
7	not necessarily a good idea to place so much emphasis on one exam
3	should allow more time for exam
3	helps to coordinate everything learned
1	oral part is especially good
1	oral part is especially difficult

Gained most from WPI?

8	experience from project work beyond just theory
6	good solid education
3	meeting, living with diverse people--becoming more people-oriented
3	how to pinpoint, deal with problems
2	experience in self-discipline
2	knowledge of subjects studied
1	"how to cope with frustrations, failures"
1	working independently; gained self-confidence
1	technical knowledge in area you enjoy; good fundamental engineering background with little bit of specialization in specific field
1	good communication, relationships with professors
1	small school--I'm not just a number here

Student government?

10	students generally uninvolved
9	ineffective
1	works well

Etcetera.

2	more input from students
2	improve course scheduling
1	expanded life science program
1	improve humanities department
1	improve hiring of RA's
1	improve faculty-administration communication

Additional courses/etc. school should offer?

3	more girls
3	more social life; recreation center
3	psychology courses
2	more humanities courses
1	business courses
1	more history courses
1	geophysics courses
1	philosophy courses
1	athletic program for women

Interview Results

Clarkson College of Technology - November 1973

Where'd you here about Clarkson?

10	high school guidance counselor
3	friends
3	relatives
3	interview with Clarkson admissions representative at high school
2	father
1	cousin who was alumnus
1	school wrote student
1	college night at high school

Why this school?

10	spent time in high school visiting the college
4	scholarship aid
3	Clarkson's personal interest in potential student
1	financial aid
1	more choice
1	prefer North

What do you think of the advising system?

5	fairly good
3	good (because small)
3	good advisors, not necessarily those assigned
3	fair, not involved enough in personal counseling
1	not open-minded enough
1	advisors not well enough informed
1	no experience with it

Ideal length of school term?

18	satisfied with way it is
5	cannot judge because no alternative exists
2	shorter, fewer courses
1	longer
1	work/study six weeks each

Friends with problem helped by whom?

10	special counselors provided by school
7	resident advisor
5	I would try to help
4	friends would try to help
3	don't know
2	Dr. Pease, psychologist
1	minister
1	Dean Davis

When you graduate, what do you think other people will think you can do?

8	capable of handling what trained for
5	capable of performing job of some kind
4	know I can think
2	learn for myself
2	high expectations; not specified
2	get things done
1	make money
1	interact with people
1	approach problems logically
1	how to use time properly
1	break through stereotype job title suggests
1	overestimate capabilities
1	not enough practical experiences

Job satisfactions?

7	work with good people
7	good salary
6	something I enjoy doing
4	challenging work
3	choice of fields open
3	live in good environment
3	responsibility/respect
3	personal satisfaction
2	solving problems
2	creating something beneficial
2	society/ecology minded company
1	possibility of advancement

Life satisfactions?

4	to be happy
4	good place to live
3	good friends
3	live comfortably
3	interact with different people
3	help other people
2	adequate income
1	learn more
1	travel
1	secure job

Number/titles of books/magazines parents read per month?

Books:

1	12 per month
1	6 per month
1	6 per year
1	3 per year
1	3 novels
1	2 mysteries

Magazines:

10	women's magazines
5	Readers Digest
4	business magazines
4	technical journals
3	news magazines
3	National Geographic
3	horse/farm magazine
2	many
2	newspapers
2	Life/Look
2	Changing Times
2	Popular Science
2	Flying
1	none
1	American Heritage
1	Better Homes & Gardens
1	Business Week
1	Wall Street Journal
1	Esquire
1	Sports
1	Photography
1	Variety
1	Psychology Today
1	Realities
1	Saturday Evening Post

What magazines will you subscribe to?

7	Time
7	Newsweek
6	professional/technical magazines
3	sports magazines
2	Playboy
2	psychology magazines
2	no idea
1	National Geographic
1	Popular Photography
1	Fortune
1	trade journals
1	Redbook
1	Readers Digest
1	Popular Science
1	Harper's
1	Health Today
1	Harvard Business Review
1	Operating Eng.
1	related to hobbies

Do you read anything other than course books?

11	novels
7	Newsweek
5	daily newspapers
4	sports magazine
4	Time
3	science fiction
3	Playboy
3	none
2	Sunday paper
2	related to hobbies
1	technical magazine
1	car magazine
1	Esquire
1	psychology magazine
1	Popular Science

Examples of novels: Harrad Experiment, In Cold Blood, Temple of Gold, When's the War, books by Herman Hesse

Do you read the school newspaper?

18	yes

If you had two weeks in which to read only books, what would you read?

7	novels
4	text books
3	science fiction
2	sociology
1	don't know
1	history
1	suspense
1	war
1	Herman Hesse
1	philosophy
1	classics
1	guitar
1	Russian literature
1	technical books
1	humor
1	War and Peace
1	mystery
1	non-fiction
1	finance

What kind of music do you like?

6	classical
5	rock
3	folk
2	country/western
1	guitar
1	piano
1	organ
1	opera
1	shows

Do you collect records/tapes?

4	rock
2	folk
1	musicals
1	classical
1	no

What are your favorites?

4	Osmond Brothers
3	Loggins/Massina
3	Who
3	Grateful Dead
3	Dooby Brothers
2	rock
2	folk
2	Jethro Tull
1	Crosby, Stills, Nash and Young
1	1812 Overture
1	shows
1	Simon and Garfunkel
1	Chicago

Do you play them often?

9	yes
4	no
1	at home sometimes
1	never

What size collection do you have?

7	small
2	over 50

How are you different from the typical student? (typical = either studies a lot or parties a lot)

7	combine studying and partying
3	not different: normal, studious
2	observe, rather than participate
2	not as competitive for grades
2	enjoy life at Clarkson
2	conservative
1	work as photographer for newspaper
1	don't drink as much beer
1	enjoy outdoor activity
1	reserved
1	being a girl
1	more serious about other people
1	dumber

Do you get preferential treatment here?

8	yes: girls do, through the fraternity, as president of the class, teachers help if you get good grades
9	no: same as everyone else, not in classes

Are you discriminated against?

10	no
2	yes: as a girl, athletic department, not a WASP, ROTC

What do you like most about the school?

9	good/relaxed atmosphere
8	good education
7	small size
4	good social life
3	good location
2	"I've done a lot of growing up here"
1	always something to do

What do you like the least about the school?

7	not enough girls
3	unbalanced social life
2	walking downtown for a class
2	poorly planned social activities
2	some of the professors: hard to understand (foreign accents) do not relate well to classes do not care about students
1	homework
1	small town surroundings
1	students who don't care much about the school
1	not enough money for additional facilities
1	narrow-minded people
1	little help with emotional problems
1	student-town social distance
1	no arts courses
1	not enough humanities courses
1	administrative problems

Is your education adequately preparing you for leadership/responsibility?

10	yes: outside activities; ROTC; small size conducive to taking leadership initiative; learn to make decisions, be responsible; job, education, and social life here; classes
6	no: learn leadership by yourself, not through curriculum

Are you planning to go on to graduate school?

11	don't know
2	civil engineering
2	chemical engineering
1	M.A. in research
1	law
1	industrial management
1	M.B.A.
1	M.A. in literature/arts
1	accounting
1	electrical engineering

At age 40, how much to you want to be earning?

4	$25-35,000
3	$20,000
2	$20-25,000
2	enough to support family, little extra
1	$100,000
1	$50-75,000
1	$40-50,000

At age 40, how many people do you want to be supervising?

6	few (up to 5)
4	5-10
3	20
2	many
2	doesn't matter
1	25-50
1	12
1	none
1	100-200

At age 40, what size organization do you want to be working for?

6	medium to small
5	fairly large
5	small
3	own company with 5 employees
2	very large
1	doesn't matter
1	teaching

How would you determine the effects of building a nuclear reactor near a school? What would you do? How to go about it? Information needed?

What would you do?

8	ask people in community if they want it
5	determine if it would be economically beneficial for the area
5	make sure there's a need for it
4	sell the idea to the town

How to go about it? What information is needed?

17	make sure its safe environmentally, etc. for community, river, etc.
5	check for radiation effects
4	research
2	find best location
1	advice from engineers
1	test it far away
1	effect on industries
1	construction costs
1	how to finance it
1	hire good people to build it

Are you planning to become involved in community activities?

6	church
5	Boy Scouts
4	work with kids
3	municipal politics
3	country club
2	Chamber of Commerce
2	Big Brother Program
2	schools
1	photography
1	Little League
1	YMCA
1	social group for arts
1	counseling
1	recreation program
1	volunteer fire department

How many faculty are you comfortable with?

8	2-3
3	4-5
2	5-10
2	1
1	20
1	15-20
1	5-6
1	3-4
1	anyone

How often do you visit the faculty members mentioned above?

2	very often
2	1-2 times a week
2	not often
1	often

How many faculty do you know personally?

6	none
6	1-2
3	2-3
2	4-5
1	5-7

How many extracurricular activities are you involved in?

6	class activities
5	newspaper
5	fraternity
5	AIChE
5	sports
4	senate
4	work
3	none
3	Resident Advisor

2	many
2	business society
1	scouting
1	novel club
1	auto club
1	housing
1	AIAA
1	SAE
1	yearbook
1	band
1	dorm action council
1	student activities committee

What do you think of the dating situation here?

9	not good, especially downtown
5	good
4	girl friend back home
1	not much of a problem

Penicillin divided up: VD or battle wounded?

17	battle wounded
6	choose ones in worse condition
4	VD
3	no choice

Interview Results

Clarkson College of Technology - October 1974

How did you hear of Clarkson?

2	friend
1	hockey coach
1	guidance counselor
1	Clarkson literature

Why did you choose Clarkson?

3	financial aid
2	small university
2	athletic program

Biggest student issues?

2	male/female ratio
1	heavy work load
1	administrative lag on action for student
1	traditional school conservativism

Where students get best information about school?

3	friends
1	upperclassmen

How much time spent on studying/courses weekly?

1	50 hours
1	20-25 hours
1	3-4 hours per subject
1	minimal/flexible

Grading system?

2	mid-terms a waste of time, low grade can be disheartening
1	"grades don't bother me"
1	"it doesn't give you much initiative"
1	often unfair--boderline difference between high C-low B, for example

Work hardest in which courses?

1	major courses
1	courses I enjoy
1	practical (rather than theoretical) courses
1	courses calling for logical reasoning

Which courses learning most from?

1	electives--social sciences, humanities
1	research, field work
1	math
1	thought-provoking courses with good communication between professors and students (rather than memorization courses)

Courses given enough/too much structure?

2 depends on teacher; some more flexible than others with course material
1 too much--four years all planned from beginning
1 seems rigid--requirements that must be completed but actually flexible as those requirements keep changing

Most helpful way to get feedback?

2 tests
1 job interviews
1 whether or not I understand the concepts

Length of term?

2 should have shorter school year; shorter, fewer breaks

Advising system: suggestions/changes?

2 need to establish personal relationship with advisor
1 advisor should be better informed, especially about course and credit changes

How do you most enjoy learning?

2 depends on course--some I prefer independent learning, others better in a classroom situation

To whom would you direct a friend with problems?

2 counselors on campus
2 myself

Are you taking any other type of courses?

2 Keller Plan--math/computer
1 directed research

Interview Results

Clarkson College of Technology - April 1974

How did you hear of Clarkson?

2	catalogues
2	high school guidance counselor
1	high school calculus teacher

Why are you here?

1	interview, visit to campus
1	good courses
1	small private college

What are Clarkson's objectives as an educational/technical institution?

3	to turn out efficient engineers
2	vocational training, rather than broad education
2	more emphasis among faculty on research rather than teaching
1	depends on department

When you graduate, what will people think [illegible] an do?

2	competent in major field of st[illegible]
2	"capable of applying principles [illegible] figuring things out"
1	solid background in principles of field

What is your relationship with your advisor like?

2	helpful
2	limited relationship; academics only
1	hard to get in touch with him
1	not much need to see him more than 1-2 per year

What sort of relationship do you have with faculty and/or administrators?

2	nonexistent
2	faculty helpful with problems if approached
1	know a few well

What sort of relationships do you have with other students?

2	know people in dorm, especially those on same floor, well
1	my class is a close-knit group

What are your plans following graduation?

1	no idea beyond wanting to be a civil engineer
1	work for an engineering firm over the summer
1	graduate school in biochemical engineering; research work

What job satisfactions are you looking for?

3	money
3	good climate
2	challenging work
1	good environment
1	settle down in one place

How are you different from the typical Clarkson student?

2	not different from "typical" student: combining studying/partying
1	involved in theater, classical music, etc.

Do you receive preferential treatment?

3	no

Are you discriminated against?

2	yes, because I am not a woman

Would you advise a student to come here?

3	yes

Do you have any advice to offer prospective students?

2	make them fully aware of "life at Clarkson"

Do you get more from Clarkson because you're an engineering major rather than a major in any other field?

3	yes

What has been your most satisfying experience thus far?

2	dorm life
2	independence
1	academics--getting good grades

Problems?

3	academic

Interview Results

Clarkson College of Technology - January 1975

How did you hear about Clarkson?

7	friends (alumni)
5	guidance counselor
3	relatives
2	live nearby
2	SCOPES program
2	parents
1	admissions dean
1	student search
1	mailed information

Why Clarkson?

6	financial aid
6	visit to campus
4	small town
3	near home
2	small college
1	new biology department
1	move away from home
1	good chemical engineering department
1	good reputation
1	cold weather

What good about Clarkson helped decision?

3	small town
3	small school
2	good education reputation
2	visit to Clarkson
1	good student body
1	activities offered
1	public relations
1	personal atmosphere

Biggest problems at Clarkson?

6	social life
3	especially hard for girls to adjust
2	not enough student communication
2	academic pressure too great; too wrapped up in studies
2	not enough girls
1	adjustment to dorm life
1	hard to apply theory
1	financial
1	lack of variety of courses
1	changes in departments
1	physical plant inadequate
1	lack of equipment
1	administration/faculty don't aid development of clubs

1	library facilities inadequate
1	housing inadequate
1	too male-oriented
1	student apathy
1	lack of liberal arts college

Faculty-administration problems at Clarkson?

5	not enough interaction with students
2	financial
2	tenure policy; faculty turnover rate
1	apathy
1	teaching pressures
1	disunity among departments
1	too much red tape
1	some teachers have trouble teaching basics
1	housing cramped
1	cheating among students
1	foreign teachers' presentation/teaching methods

Grading system?

9	fair
6	prefer ±: more accurate
6	prefer letter grades--need pressure to work hard
4	humanities pass/fail--to take courses not otherwise taken
1	prefer pass/no credit
1	take "C" courses over
1	final exams count too heavily--homework, outside work should count more
1	number system better

Pass/fail system?

2	can be used as way out if not doing well in a course
1	depends on course
1	good idea
1	less pressure, better than letters

ABCD vs. pass/fail system: incentive?

4	not work as hard for pass/fail
4	good to take humanities pass/fail
1	no difference

Change grading system?

1	no
1	Acceptable, Unacceptable, High Acceptable
1	grade to include "effort"
1	wider range of grades

Additional courses you'd like offered?

4	humanities
3	English--better, more, variety
2	music
2	band
2	expand one-semester courses
2	psychology
1	automechanics
1	advanced non-linear circuits
1	more free electives
1	languages
1	control systems engineering
1	history
1	architectural design
1	business
1	public speaking
1	writing
1	anthropology
1	sociology
1	life saving/first aid
1	aeronautical engineering

Faculty/student relationship?

10	good generally; work with problems
6	easy to talk to faculty
6	some on personal, social level as well as academic
6	faculty available
2	faculty interested in students
1	many faculty knowledgeable, but are not good teachers
1	some faculty have excellent rapport; others lacking rapport with students

Course load?

6	hard work but not too difficult
5	not difficult
4	carry heavy (18-20 credits) course loads
4	good--work with time to spare for other activities
3	a lot of work

Cheating a problem?

14	its here but is not a major problem
3	no contact with it
1	a lot freshman year
1	a lot on homework
1	yes

Length of term?

13	good as it is
3	less vacation time
2	depends on course: some too short, others too long
1	trimester better
1	4 terms with 3 courses each better
1	longer better

Marijuana a problem?

16	widespread but not a problem
3	no
1	more than half the school smokes regularly
1	yes for a minority

Alcohol a problem?

15	yes: nothing else to do; "its a pastime, a hobby here"
9	most people drink but handle it

Advising system?

14	good communication, helpful, concerned
4	not good, impersonal
1	faculty not available enough

Changes in advising system?

1	assign advisors for freshman year only; others by choice
1	better ratio of one advisor to fewer students
1	faculty better informed
1	students required to see advisors several times during the year
1	hire departmental advisors in addition to faculty members

Best part of Clarkson education?

7	academic, personal involvement with the school: learning to live with people
5	high quality education
4	being away from home--learning to be independent
1	one-to-one relationship with teachers
1	problem-solving skills
1	small number of students
1	good reputation so better chance of getting a job
1	usefulness of the practical knowledge learned
1	the degree
1	business courses

Worst part of Clarkson education?

4	no social life
4	no extracurricular programs or activities--need recreation center
1	humanities not deep or demanding enough
1	more girls
1	isolated as "engineering school"--need liberal arts students as well
1	too expensive
1	need more labs, application of theory
1	"too many people learn for the grade, not for what they're learning"
1	work difficult
1	general disinterest
1	weak in electrical engineering

Gained most from Clarkson?

5	good education
5	interaction with different people, i.e., "social education"
3	personal development: perspective on people, careers, life
2	independence from family
1	professional integrity, pride
1	"what interests me academically"
1	technical education leading to a job
1	better understanding of business world
1	how to work hard
1	adjusting to different situations

Additional things school should offer?

9	physical education program, facilities
9	recreation, activities for students--union, etc.
4	women's sports expanded
1	more housing
1	more girls
1	liberal arts college
1	music/band
1	better humanities department
1	football/hockey teams
1	not be able to specialize before junior year
1	more faculty-administration structure, initiative to do more for students
1	more engineering courses

Interview Results

Stevens Institute of Technology - March 13, 1975

How did you learn of Stevens?

8	friends
5	teacher
5	college catalogue books
5	guidance counselor
4	lived nearby
4	Stevens' placement officer visit to high school
3	Stevens' literature
2	relative (alumnus)
1	American consulate advisor (Turkey)

Why did you decide to attend Stevens?

11	near home
5	scholarship
5	good reputation
3	financial aid
2	school atmosphere
2	small school
2	good curriculum
1	best friend is here
1	near New York City
1	low tuition
1	live on campus
1	broad education provided

Biggest problems for students?

3	poor social life
3	expenses
3	crammed for time to fit in all courses
3	getting jobs for graduates
2	problems with lab courses--some instructors uninterested, poor teachers
2	hard work, tough grading system
1	poor teachers
1	low level of students
1	low level of graduate courses
1	faculty unable to act on student problems
1	little communication on campus
1	honor system failing
1	advisor unavilable
1	conservative school--little student power
1	professors don't care about students--offer little help
1	poor location: Hoboken
1	too much time spent on labs
1	little choice of courses
1	hard for graduate students as facilities, etc. geared for undergraduates

Biggest problems for faculty?

4	not enough time to spend with students
2	lack of financial support for research
2	lab instructors often incompetent
1	large size of classes
1	difficult for teachers to do research/teach well
1	some professors are poor teachers
1	students not as bright as in past--need more time

Biggest problems for administration?

5	budget problems
5	communication with faculty, students, each other
1	apathy of students
1	poor staffing

What do you think of the grading system?

12	satisfied with it as is--feel it is representative
5	pass/fail for humanities, physical education
3	don't care about grades
3	less reliance on "curve"; shift to more realistic use of grades
2	1-100 number system would be better
1	too much emphasis on grades
1	good, flexible
1	should be more exams--not just one final

Does pass/fail make a difference in how hard you work?

7	yes; work less hard--just do enough to pass; don't really learn the material
5	no; work the same
4	ABCD gives me more motivation
2	ABCD gives a better indication of how well I'm doing
1	". . . without pass/fail, you tend to be more worried about grades than about just learning something"
1	unfair systems (ABCD and pass/fail): not representative of amount of effort put in

Changes in grading system?

1	make it more flexible--aim for an A or settle for a C

Additional courses?

5	more/better humanities
3	more computer programming languages; advanced computer
2	courses with more practical knowledge
2	more required advanced courses
2	more inclusive courses (i.e., without duplications cross-departments)
2	plasma physics at graduate level
1	more environmental courses
1	more biology courses
1	more engineering courses
1	architecture
1	shop
1	more basic chemical engineering
1	wider range of courses in major area

Student/faculty relationship?

16	professors available, open
11	good
7	able to get to know professors well
3	depends on individual faculty and student--if you want a good relationship, you can find it
2	little communication
1	impersonal
1	poor--due to student apathy
1	formal

Advising system?

10	helpful, open, available to students, well-informed
3	unhelpful, not well enough informed, uninterested, untrained
1	should have special advisors--not professors with other duties
1	able to develop personal relationships with students
1	poor as undergraduate; improved as graduate student
1	poorly organized for graduate students

Changes in advising system?

2	professors willing to work with, advise students; willing to get involved
1	check out qualified people before they're made advisors
1	advisors seek out students, set up appointments, etc.

Length of semester?

21	good as is
3	too short/concentrated
1	more time allowed for certain courses
1	need a break in middle of year

Course load?

14	heavy course load here
8	good as is
5	too heavy
1	four graduate courses heavy

Marijuana a problem here?

13	not a problem
3	yes--interfered with students' studies
1	don't know

Alcohol a problem here?

12	not a problem
2	yes--adverse effects
1	don't know

Best part of Stevens' education?

11	excellent broad educational background
4	diversified education, especially generalized curriculum during first few years
4	good faculty: many devoted teachers
4	getting a good job
3	good relationship with faculty
2	good people here
2	access to N.Y., other schools, professionals
2	to study in an urban environment
2	learn to think analytically
1	labs
1	good tutors available
1	ability to do research as an undergraduate
1	reputation for producing good, qualified engineers
1	light course load allowed time for other things

Worst part of Steven's education?

5	poor social life
2	commuter school
1	hard academically
1	too many required courses
1	lack of choice of courses
1	lack of practical experience
1	tests
1	labs
1	poor living conditions in town
1	people here
1	poor teachers
1	hard for foreign students to get financial aid
1	poor quality of humanities courses
1	hard for freshmen to adjust
1	unpleasant atmosphere

Gained most from being here?

9	solid educational background
4	". . . enough technical competence to work professionally"
4	relationships with other people here; "learned how to deal with a lot of different kinds of people"
3	analytical skills/problem-solving
2	broad experience
2	self-discipline
2	good relationships with professors
1	how to study
1	"the pressure forces you to do your best"
1	Stevens' philosophy--diversified education
1	learned a lot with guidance of teachers, advisors
1	knowledge of fundamental sciences, materials--how to apply them
1	"insight into what's going on in the field"
1	ability to reason
1	"I've learned a lot about engineering, about the curriculum, and about people
1	engineering degree

Do you feel discriminated against here?

21	no
4	yes
3	yes--job opportunities, scholastic help are more available here for women
2	yes--graduate students = 2nd class citizens
1	yes--"girls have more influence than guys"

Other things school should offer?

3	more social activities
3	stronger humanities department
3	sports/athletic facilities
2	weekend activities
2	need more women
1	practical work in industry--during summer, for credit
1	activities for commuters
1	additional courses in major fields

Graduate/undergraduate differences?

7	undergraduates treated better than graduates
3	undergraduates receive more consideration; school concentrates on undergraduate education
1	undergraduates have to work harder; more regulations
1	Stevens cashes undergraduates' checks but not graduates' checks
1	". . . expect more from graduates?"
1	"professors seem to be more open with graduates"

Do you come to Stevens on weekends?

10	rarely
9	no
4	often

What could Stevens offer to have you stay on weekends?

4	social events
3	concerts
3	sports events/activities
1	club activities

Improvements in student life?

6	more people getting involved
3	more activities on campus
3	"community spirit"
3	sports
2	more women
2	student center; free activities; create a real campus
2	better housing
1	cut out some regulations
1	more relationships with womens' schools
1	provide facilities for cooking in dorms
1	main problem = commuter school

Honor system?

14	effective, well-run by students
8	abused, ignored; not all students stick by it
1	majority abide by it; some do not

Student government?

1	effective; gets things done

Unified degree?

15	prefer it to specific degree; not limited to one field
5	prefer specific degree
1	may be difficult for employers to evaluate

Etcetera

1	problem: "administration fosters a resentment on the part of students towards the city of Hoboken"

APPENDIX E

PROJECT EVALUATION QUESTIONNAIRE FINDINGS

1. Sponsor Questionnaire
2. Student Questionnaire

(1-6) Date___/ /___

Combined Data
(August 1974, February 1975)

N = 70

Dear

We are evaluating the Projects approach as part of the overall WPI Plan and to do so we will need your help. Would you please take 5 minutes to answer the few questions below and return in the attached envelope to J. Mielinski, Washburn 230 by dropping this in the campus mail in any department office or Boynton Hall. Thank you.

(7-16) Student's Name________________________ S.S.# ☐☐☐ ☐☐ ☐☐☐☐

P.A. Initials & Sequence No. ☐☐☐ ☐☐☐☐

(17-22) Project Title________________________

(17-22) Project Advisor(s)________________________

(23) Project Conducted During Term(s)________________________

(24) Are you on the Plan? Yes ☐ 56% No ☐ 44%

N = 70

PLEASE CHECK THE BOXES WHICH BEST EXPRESS YOUR OPINION ON EACH ITEM.

▶▶ How would you rate:

		Outstanding	Good	Fair	Poor	
(25)	Your background (preparation for the Project?	☐ 10%	☐ 48%	☐ 35%	☐ 7%	Why? N = 69
(26)	Your performance during the Project?	☐ 19%	☐ 65%	☐ 16%	☐ --	Why? N = 68
(27)	Your understanding of the Project (aim)?	☐ 43%	☐ 53%	☐ 3%	☐ 1%	Why? N = 68
(28)	Your adaptability as problems arose?	☐ 25%	☐ 63%	☐ 12%	☐ --	Why? N = 67
(29)	Your Project manager in the Sponsoring Organization (if off-campus)?	☐ 46%	☐ 35%	☐ 8%	☐ 11%	Why? N = 46
(30)	Your co-workers if any and your relationship with them?	☐ 41%	☐ 48%	☐ 7%	☐ 4%	Why? N = 54
(31)	Your personal learning?	☐ 52%	☐ 37%	☐ 10%	☐ 1%	Why? N = 68
(32)	Your ability to use the equipment required during the Project?	☐ 23%	☐ 65%	☐ 12%	☐ --	Why? N = 51
(33)	Your experimental expertise at the Project's start?	☐ 5%	☐ 28%	☐ 49%	☐ 18%	Why? N = 57
(34)	Your experimental expertise at the Project's end?	☐ 31%	☐ 63%	☐ 6%	☐ --	Why? N = 51

(OVER) G-3

		Out-standing	Good	Fair	Poor	
(35)	Your Project result?	☐ 26%	☐ 56%	☐ 15%	☐ 3%	Why? N = 61
(36)	Your Project advisor(s)?	☐ 41%	☐ 50%	☐ 8%	☐ 1%	Why? N = 66

(37) What was your best experience(s) in this Project?____________________

(38) Your worst experience(s)?____________________

(39) If the Project was sponsored by an off-campus organization would you seek a job with that organization when you graduate?

Yes ☐ 46%   No ☐ 54%   N = 54

(40) Why?____________________

OFF-CAMPUS

WPI PROJECT EVALUATION QUESTIONNAIRE

Combined Data
(August 1974, February 1975, October 1975)

N = 167

Date__________

Student's Name________________________ Your Name__________________________________

Project Title________________________ Position__________________________________

I. What is your opinion of the student in terms of his preparation for execution of the Project.

Outstanding	Good	Average	Fair	Poor	No Opinion	
39%	45%	13%	2%	1%	--	Why?_____ N = 167

II. How imaginative was the student, that is, how would you evaluate his ability to deal with problems which arose during the execution of the Project?

Outstanding	Good	Average	Fair	Poor	No Opinion	
33%	49%	11%	3%	--	4%	Why?_____ N - 167

III. How effectively did he interact with your staff in coping with problems as they arose?

Outstanding	Good	Average	Fair	Poor	No Opinion	
35%	43%	13%	4%	1%	4%	Why?_____ N = 162

IV. Were the aims of the project as viewed by you achieved.

Exceeded Expectation	Achieved	Average	Fair	Not Achieved	
28%	60%	6%	4%	2%	Why?_____ N = 163

V. On the basis of this project experience, how would you rate this student as a potential employee compared with other candidates you have interviewed in the past?

Would recommend hiring under any business conditions	48%	
Would hire if business conditions were good	45%	
Would hire only if no other candidates were available	6%	
Would not hire under any circumstances	1%	N = 144

VI. On the basis of this experience, how would you view your continuing project involvement? (October 197[illegible] results only)

Would be interested in students doing projects on a recurring basis	68%	
Would be interested in students on more than one project at any given time	30%	
Would be interested in projects in a more favorable business climate	2%	N = 66

APPENDIX F

ENGINEER-IN-TRAINING TEST SCORES

EIT EXAMINATION SCORES

April 1975 Results

Score	Plan Number	non-Plan Number
96	1	1
95	2	0
94	1	0
93	2	1
92	1	1
91	1	1
90	3	2
89	1	0
88	2	1
87	3	0
86	0	2
85	2	1
84	2	2
83	1	2
82	2	0
81	3	0
80	2	3
79	2	3
78	0	3
77	2	4
76	0	0
75	2	2
74	1	2
73	0	1
72	0	0
71	0	1
70	1	3
(failure) less than 67	3	6